RCRA FACILITY ASSESSMENT REPORT

Asheville Dyeing and Finishing Co./Anvil Knitwear
NCD070619663

850 Warren Wilson College Road
Swannanoa, NC 28778

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4
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	Work Assignment No.:	R04804-1
	Contract No.:	68-W-02-17
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July 29, 2004

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1.0 EXECUTIVE SUMMARY

The first step in the Resource Conservation and Recovery Act (RCRA) corrective action process is the RCRA Facility Assessment (RFA). The RFA is conducted to assess whether a release of hazardous waste or hazardous constituents has occurred from solid waste management units (SWMUs) and to identify potential area of concern (AOCs) at the facility. The main components of an RFA are to identify and gather information on releases at the RCRA facility; to evaluate SWMUs for releases to all media (groundwater, surface water, air, and soil); and to make preliminary determinations regarding releases of concern and the need for further action and interim measures at the facility.

An RFA is currently being conducted for the former Asheville Dyeing and Finishing facility, now known as the Anvil Knitwear facility, hereinafter referred to as the ADF facility. A file search of U.S. Environmental Protection Agency (EPA) Region 4 and North Carolina Department of Environment and Natural Resources (NCDENR) file material for the site was conducted in March 2004. Following completion of the file search, a preliminary review (PR) of the file material was conducted to develop an understanding of the site prior to conducting the visual site inspection (VSI). A VSI of the ADF facility was conducted on June 2, 2004 to address information gaps identified during the PR and to identify and document information associated with all SWMUs identified in the PR. Each SWMU identified during the PR was inspected, and a meeting with facility representatives was conducted to obtain additional information. This report outlines the findings of the PR and the VSI.

Anvil Knitwear is an active textile manufacturer. Processes conducted at the facility include knitting, dyeing, and finishing cotton fabric for "Active Wear" clothing. The facility is located at Warren Wilson College Road, Swannanoa, North Carolina, in Buncombe County. The geographical location of the facility is latitude 35° 25' 45" N and longitude 82° 25' 45" W. The location of the facility is shown on Figure 1. The ADF facility is bounded on the south by the Warren Wilson College Road and new residential homes under construction; on the west by Old Bee Tree Creek road (State Road 2418); on the north by an inactive company named Tandy Corporation whose parent company is Radio Shack and further north by an inactive National Priorities List (NPL) site named Chemtronics Incorporated; and on the east by Beetree Creek. The entire ADF property comprises approximately 54 acres and includes a 157,613 square foot building that includes office space, a large manufacturing area, a maintenance garage, two loading docks, and a Quality Control laboratory. The facility property is partially surrounded by a chain-link fence topped with barbed wire. Access to the property is gained either by the front office or by a security gate that accesses the back of the facility operations (Reference No. 18; Reference No. 4).

Prior to being developed in 1971, the subject property was undeveloped land and fields. Northrop Carolina began operations at the ADF property in approximately 1964. According to facility representatives, Northrop Carolina sold the property to Lowenstein and Sons Inc. (i.e., Wamsutta) in 1971. In approximately 1976, Wamsutta sold the property to Winston Mills (who later became Asheville Dyeing and Finishing). In approximately 1987, Asheville Dyeing and Finishing sold

the property to Anvil Knitwear. Anvil Knitwear is the current owner of the subject property (Reference No. 4).

The process equipment that was owned and operated by Asheville Dyeing and Finishing was reportedly removed when Anvil Knitwear purchased the property. The only historic unit remaining from Asheville Dyeing and Finishing is the groundwater remediation system that was put in place to treat a spill of perchloroethylene (PCE) that occurred prior to 1985. According to Anvil Knitwear representatives, the textile manufacturing process at the Anvil Knitwear property begins with virgin or "grey" (contains Daycron) yarn being brought into the facility in 1,000 lb. rolls on plastic pallets. The yarn is taken to the "Knitting Room" and inserted into the knitting process where knitting machines weave the cotton yarn into rolls of cotton fabric. The fabric is then taken to the "Dye House" where rolls of cotton fabric are systematically inserted into large tumbling dye machines. The dye machines rotate in a circular horizontal motion allowing the fabric to be saturated with the dye until the fabric is dyed to customer specifications. The fabric is then manually put into large plastic containers and taken to the "Finishing Area." The fabric is first softened with a polyethylene chemical, and the excess water and dye is extracted from the fabric. During this process, the fabric is also stretched to the desired width requested by the client. The fabric then goes into multi-press dryers where steam and natural gas are used to heat and dry the fabric. Finally, the dried fabric is taken to the compacting area where the fabric is treated to prevent excessive shrinkage after the end user has purchased the final product (i.e., Active Wear). The facility laboratory then reviews the dyed fabric to assess the fabric quality. After the laboratory approves the fabric, the fabric is wrapped in plastic wrap and packaged to be shipped to customers in Honduras and El Salvador (Reference No. 26; Reference No. 4).

Based on the PR and information gathered during the VSI, a total of 23 SWMUs and two AOCs were identified at the ADF facility. The names of these SWMUs and AOCs are listed in Attachment 1 and their locations are identified on Figure 2. In addition, an overview description of the SWMUs and AOCs is provided in Tables 1 and 2 and a more detailed discussion is provided in Section 6.0 of this report.

Table 1 Solid Waste Management Units					
SWMU #	**SWMU Name**	**Type of Unit**	**Period of Operation**	**Waste Managed**	**Release Potential**
1	Trash Receptacles	Solid Waste Containers	1987 to present	Miscellaneous solid waste produced during daily routine operations (plastic, employee trash, etc.)	Low
2	Air Collectors/Filters	Air Filtration	1987 to present	Cotton lint	Low
3	Used Knitting Oil Storage Area	Storage	1987 to present	Used oil	Low
4	Secondary Containment for New Knitting Oil	Secondary Containment	1987 to present	Knitting oil	Low
5	Parts Washers (4)	Parts Washer	1987 to present	Solvent	Low
6	Compressed Air Cleaning Box and Collection Bin	Self Contained Waste Handling Unit	1987 to present	Cotton fibers, dust, and absorbed knitting oil	Low
7	Secondary Containment for Tote Farm	Secondary Containment	1976 to present	Detergents, surfactants, bleach, peroxide enzyme, and acetic acid	Low
8	Secondary Containment for Dye Mixing Room	Secondary Containment	1976 to present	Rinse waters containing non-hazardous dyes and chemicals	Low
9	Interior Floor Drains/Trench	Drain	1971 -	Dye, detergents, surfactants, bleach, and	Low

	Drains		Present	peroxide enzyme, cotton fibers, dust, and other miscellaneous materials	
10	Former Waste PCE Tank Area	UST	1971 to 1985	Waste PCE	Low
11	Sparging/SVE Remediation System	Remediation System	1997 to present	Air vapor containing PCE and its degradation by-products	Low
12	Waste Water Collection/Treatment System	Waste Water Treatment System	1991 - Current	Facility waste water includes containing non-hazardous dye and chemicals (i.e., detergents, surfactants, bleach, and peroxide enzyme), and small amounts of solids composed of cotton fabric, cotton fibers, dust, and other miscellaneous materials	Low
13	Eight-inch Drain	Drain	1976 - Unknown	PCE	Medium
14	Old Dump Area	Dump	Late 1960's	Drums containing unknown materials, construction and demolition debris, ductile metallic material, tires, and other metallic materials	Medium
15	Roll-Off Container (North Side)	Roll-off Container	2003 to present	Scrap metal generated during the facility's construction/renovation activities	Low
16	Former Drum Storage Area	Storage	Unknown to 1994	Drill cuttings, development water, and purge water generated during the installation of the facility's sparging/soil	Low

				vapor extraction (SVE) remediation systems (SWMU 11)	
17	Secondary Containment for Chemical tanks	Secondary Containment	1971 to present	Salt brine, acetic acid, and hydrogen peroxide which may leak from associated tanks and pipes	Low
18	Secondary Containment for Fuel Oil Tanks	Catch Basin for spilled Fuel Oil	1971 to present	#2 and #6 fuel oil that may leak from associated tanks and pipes	Low
19	Roll-Off Container (West Side)	Roll-off Container	2003 to present	Construction debris generated during the facility's construction/renovation activities	Low
20	Roll-Off Container with Compactor (West Side)	Roll-off Container	1971 to present	Non-hazardous refuse including paper, packaging, plastic, lint, cardboard, floor sweepings, and general office trash	Low
21	Storm Water Drains	Drains	1971 to present	Storm water runoff generated during rain events	Low
22	Used Oil Storage Area (Third Floor)	Storage	1987 to present	Used oil	Low
23	Storage Area along North Fence Line	Storage Area	2002 to present	Plastic Waste Handlers and Tanks	Low

Table 2 Areas of Concern					
AOC #	**AOC Name**	**Type of Unit**	**Period of Operation**	**Waste Managed**	**Release Potential**
1	Former Disturbed Soil Area	Alleged Dumping Area	Unknown	PCE, other miscellaneous refuse (motor oil cans, glass, lint, etc.)	Medium

2.0 INTRODUCTION

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) provide authority in the RCRA program to assist the U.S. Environmental Protection Agency (EPA) in implementing corrective action at RCRA facilities. RCRA facilities include all facilities that currently treat, store, or dispose of hazardous waste (or have done so in the past) as regulated under RCRA. The first step in the RCRA corrective action process is the RCRA Facility Assessment (RFA). The RFA is conducted to assess whether a release of hazardous waste or hazardous constituents has occurred from solid waste management units (SWMUs) and to identify potential areas of concern (AOCs) at the facility. A SWMU is defined as any discernable waste management unit at a RCRA facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for management of solid and/or hazardous waste. An AOC is an area where spills or other releases of waste have occurred resulting from waste management activities that may not fit the definition of a SWMU release. The main components of an RFA are to identify and gather information on releases at the RCRA facility; to evaluate SWMUs for releases to all media (groundwater, surface water, air, and soil); and to make preliminary determinations regarding releases of concern and the need for further action and interim measures at the facility.

Under Work Assignment No. R04804-1, EPA Region 4 requested that Booz Allen Hamilton (Booz Allen) conduct an RFA at the Asheville Dyeing and Finishing, Inc., now known as the Anvil Knitwear facility, hereinafter be referred to as the ADF facility, located in Swannanoa, North Carolina. This RFA report outlines the findings of the preliminary review (PR) and the visual site inspection (VSI). The purpose of the RFA was to identify, gather information on, and evaluate the potential for releases to the environment from AOCs, including SWMUs, where releases of hazardous constituents may have occurred in the past.

The specific objectives of the RFA are to:

- Perform a PR of the file material and conduct a VSI to assess the potential for release of hazardous wastes or hazardous constituents from each SWMU and AOC;
- Identify all SWMUs and AOCs located at the ADF facility;
- Make preliminary determinations regarding releases of concern and the need for further actions, including confirmatory sampling (CS), RCRA facility investigations (RFIs) and/or interim measures (IMs) for each SWMU at the facility; and
- Rank each facility as a high, medium, or low priority facility utilizing the RCRA National Corrective Action Prioritization System (NCAPS).

2.1 File Search and Visual Site Inspection

A file search of EPA Region 4 and North Carolina Department of Environment and Natural Resources (NCDENR) file material for the site was conducted in March 2004. Following the completion of the file search, a PR of the file material was conducted in March and April 2004 to develop an understanding of the site prior to conducting the VSI. A list of references used to prepare this report is provided in Section 7.0.

Primarily, the PR focused on past and current facility waste management practices involving waste generation, treatment, and storage and/or disposal. The PR also included a review of other activities and areas, not involving waste, which may have exhibited a potential for releasing contaminants to the environment (e.g., drum, raw materials, or product storage areas, fuel storage or transfer areas, and other areas of contamination). As a result of the PR, a tentative list of SWMUs was identified and used to plan the VSI. The PR also identified additional information that needed to be gathered during the VSI to fully assess the potential for releases from SWMUs.

On June 2, 2004, a three-person EPA/contractor team (John Johnston, EPA Region 4; and Bret Kendrick and Jeremy Hogard, Booz Allen) performed the VSI. Also present were Larry Stanley and Elizabeth Stewart from NCDENR. The primary facility participants were Steve Pegg, Director of Human Resources for Anvil Knitwear, Bob Laboube, Culligan International, who is the consultant for Asheville Dyeing and Finishing, and Kirk Pollard, Mineral Springs Environmental, who is the previous consultant for Asheville Dyeing and Finishing. The purpose of the VSI was to address information gaps identified during the PR and to identify and document information associated with all SWMUs identified in the PR. Each SWMU identified during the PR was inspected and a meeting with facility representatives was conducted to obtain additional information (Reference No. 4).

3.0 FACILITY DESCRIPTION

The EPA ID Number for the facility is NCD070019663. Anvil Knitwear is an active textile manufacturer. Processes conducted at the facility include knitting, dyeing, and finishing of cotton fabric for "Active Wear" clothing. The facility is located at Warren Wilson College Road, Swannanoa, North Carolina, in Buncombe County. The geographical location of the facility is latitude 35° 36' 45" N and longitude 82° 25' 45" W. The location of the facility is shown on Figure 1. The ADF facility is bounded on the south by the Warren Wilson College Road and new residential homes under construction; on the west by Old Beetree Creek road (State Road 2418); on the north by an inactive company named Tandy Corporation whose parent company is Radio Shack and further north by an inactive Superfund site named Chemtronics Incorporated; and on the east by Beetree Creek. The entire ADF property comprises approximately 54 acres and includes a 157,613 square foot building. Encompassed within the facility building are an office space, a large manufacturing area, a maintenance garage, two loading docks, and a Quality Control laboratory. The facility property is partially surrounded by a chain-link fence topped with barbed wire. Access to the property is gained either by the front office or by a security gate that accesses the back of the facility operations (Reference No. 18; Reference No. 4).

4.0 DESCRIPTION OF SITE ACTIVITIES AND HISTORY

Prior to 1971 the subject property was undeveloped land and field. Northrop Carolina began operations at the ADF property in approximately 1964. According to facility representatives, Northrop Carolina sold the property to Lowenstein and Sons Inc. (i.e., Wamsutta) in 1971. In approximately 1976 Wamsutta sold the property to Winston Mills (who later became Asheville Dyeing and Finishing). In approximately 1987, Asheville Dyeing and Finishing sold the property to Anvil Knitwear. Anvil Knitwear is the current owner of the subject property. (Reference No. 4).

The process equipment that was owned and operated by Asheville Dyeing and Finishing were reportedly removed when Anvil Knitwear purchased the property. The only historic unit remaining from Asheville Dyeing and Finishing is the groundwater remediation system that was put in place to treat a spill of PCE that occurred prior to 1985 (SWMU 10). This spill will be specifically discussed further in this report.

According to Anvil Knitwear representatives, the textile manufacturing process at the Anvil Knitwear property begins with multiple spools of virgin or "grey" (contains Daycron) yarn being brought into the facility on 1,000 lb. plastic pallets. The yarn is taken to the "Knitting Room" and inserted into the knitting process where knitting machines weave the cotton yarn into 45 lb. rolls of cotton fabric. The fabric is then taken to the "Dye House" where rolls of cotton fabric are systematically inserted into large tumbling dye machines. The dye machines rotate in a circular horizontal motion allowing the fabric to be saturated with the dye until the fabric is dyed to customer specifications. The fabric is then manually put into large plastic containers and taken to the "Finishing Area." The fabric is first softened with a polyethylene chemical and the excess water and dye is extracted from the fabric. During this process, the fabric is also stretched to the desired width requested by the client. The fabric then goes into multi-press dryers where steam and natural gas are used to heat and dry the fabric. Finally, the dried fabric is taken to the compacting area where the fabric is processed to prevent excessive shrinkage after the end-user has purchased the final product (i.e., Active Wear). The dyed fabric is then reviewed by the facility laboratory to assess the fabric quality. After the fabric is approved by the laboratory, the fabric is wrapped in plastic wrap and packaged to be shipped to customers in Honduras and El Salvador. The Standard Industrial Classification (SIC) codes listed on the facility's Permit to Discharge Industrial Waste Water were 2254 and 2269 (Reference No. 26; Reference No. 4; Reference No. 31).

4.1 Waste Management Practices

Historically, the property was owned by Northrop Carolina, which manufactured pyrotechnics from 1964 until 1969. A dump site (SWMU 14) is located on the current property, which was reportedly generated by Northrop Carolina and contains various known and unknown materials (metal piping, drums, construction and demolition debris, etc.). Northrop Carolina sold the property to Wamsutta, a textile manufacturer, in 1971 and has remained a textile manufacturing

facility through present day operations. The Ashville Dyeing and Finishing operations involved the dyeing and finishing of the cotton fabric material.

In 1984, nearby groundwater wells were discovered to contain PCE, trichloroethene (TCE), and dichloroethene (DCE). These chlorinated volatile organic compounds (VOCs) were attributed to potential releases from two underground storage tanks (USTs) (SWMU 10) located on the subject property. ADF used these tanks as a part of their dry cleaning process.

In April 1985, the USTs were removed, and soil samples were collected from the bottom of the tank pits and analyzed for solvent. The results of these analyses identified detectable levels of 1,1,2-trichloroethylene (1,1,2-TCE). In addition to the potential release from the USTs, a spill of primarily PCE reportedly occurred in 1971 and may have entered into a drain pipe (SWMU 13) that discharged into Beetree Creek.

As a result of the identified contamination, in October 1997 Mid-Atlantic Associates initiated the design and installation of a groundwater remediation system (SWMU 11) for the impacted groundwater and soil originating from the waste PCE tank. The system includes an air sparging unit and a soil vapor extraction (SVE) unit. No further information is available pertaining to the waste management practices conducted by ADF (Reference No. 28; Reference No. 18).

Currently, the subject property is an active textile manufacturer that utilizes a multi-level process that produces cotton fabric material. During this process, there are several direct and indirect waste streams produced that the facility is required to manage. The primary waste streams generated by the facility are categorized into four separate areas:

- Knitting Room - There are several waste streams produced within this process area. During the knitting process, the cotton yarn is threaded through knitting machines that sew the yarn into a solid piece of fabric. During this process, lint, dust and cotton residuals are produced and captured in mounted air collectors and air filters (SWMU 2). The lint, dust and cotton residuals that are captured by the air collectors and air filters as well as the lint, dust and cotton residuals swept up from the floor of the Knitting Room are disposed of in trash receptacles (SWMU 1). These trash receptacles will be discussed in more detail further in the report. The solid waste collected in the trash receptacles is eventually disposed of in an off-site landfill. The knitting machines require a lubricating knitting oil to ensure proper mechanical functioning. This oil is drained from the machines and temporarily stored in two 55-gallon drums (SWMU 3) and later recycled by Holsten Oil Company (Reference No. 4).

- Residual Dye Waste Water - The process following the knitting room is the actual dyeing process of the cotton fabric. During this process, there are large quantities of water, dye, and chemicals used to dye the fabric. The process starts in the Dye Mixing Room where non-hazardous dyes and chemicals and mixed to produce the client requested dye color. The chemicals used throughout the dyeing process include detergents, surfactants, bleach, and peroxide enzyme. During the mixing process, waste dye is captured and contained

within the concrete secondary containment located beneath the mixing vessels in the Dye Mixing Room (SWMU 8). This waste liquid is then drained and piped to the facility waste water treatment system (SWMU 12). From the Dye Mixing Room, the dye is piped to the dyeing machines located in the Dye House. The cotton fabric is inserted into the dyeing machines where the fabric is saturated with the dye. The residual dye is then piped from the dye machines to the facility waste water treatment system. The final stage of the dyeing process is located in the Finishing Area. The cotton fabric is interposed into machines that extract the remaining dye and apply fabric softener to the material. The extracted dye is piped from the machines to the facility waste water treatment system (SWMU 12) (Reference No. 4).

Waste Water Treatment System (SWMU 12) - Waste water discharged to the facility's waste water treatment system first passes through a series of heat exchangers and then through a 10,000-gallon concrete subgrade tank located in the facility's basement. The waste water is then pumped to two pre-treatment screens located outside the facility building adjacent to the 1,000,000-gallon capacity water treatment tank. The pre-treatment screens remove any large solids that are entrained in the waste water before the waste water is discharged into the 1,000,000-gallon capacity treatment tank. These solids are gathered into facility waste receptacles and disposed of in a municipal solid waste landfill. The waste water is aerated prior to being discharged from the 1,000,000-gallon capacity treatment tank. The facility's waste water permit (Permit S-021-01) requires that the facility monitor the pH of the waste water prior to being discharged from the facility. The permissible pH limit for the waste water is between 6.0 and 10.0 standard units. The waste water is then piped through a weir to monitor the volume and discharge rate of water being discharged from the facility. The waste water is then piped to the Metropolitan Sewerage District, a publicly owned treatment works (POTW) facility for final treatment. According to facility personnel, the facility discharges approximately 1,000,000 gallons of waste water a day to the Metropolitan Sewerage District (Reference No. 4; Reference No. 31).

Trash Receptacles (SWMU 1) - The waste stream from this unit consists of daily sweepings from the floor of the process areas' in the main building and miscellaneous solid waste produced during daily routine tasks (plastic, employee trash, etc.). The Knitting Room contains fifteen 55-gallon trash receptacles. The Dye House contains six 55-gallon trash receptacles and four large mobile trash receptacles. The Finishing Area contains twenty-six 55-gallon trash receptacles. All of this waste is gathered and compacted at the facility compactor roll-off unit (SWMU 20). Waste Management Company is the facility contractor that is scheduled to pick-up and remove the compacted waste two times a week and properly dispose of the waste (Reference No. 4; Reference No. 30).

4.2 Regulatory History

The following is a list of significant regulatory events at the ADF facility.

Historically, a release of 50 gallons of 10% PCE and 200 gallons of 100% PCE occurred on August 12, 1976. The PCE reportedly entered an eight-inch corrugated drain pipe (SWMU 14) located on the Winston Mills, Inc. property that ultimately discharged into Beetree Creek. The discharge point was located at the southeastern corner of the subject property and adjacent to Beetree Creek. On August 14, 1976, the facility initiated a requested cleanup of the impacted area to remove visible residual PCE from the creek and assumed impacted areas (Reference No. 32; Reference No. 33).

Winston Mills, Inc. operated the subject property and facility through an unincorporated division named Asheville Dyeing and Finishing. During its operation, the facility utilized raw and waste PCE as a part of their dry cleaning process for the cotton fabric. The PCE was stored inside two USTs located on the southeast end of the main process building. These tanks were reportedly removed by the facility in 1985. The facility conducted confirmatory sampling in 1985 following the removal of the USTs. The analysis of these soil samples resulted in the detection of 1,1,2-trichloroethylene in the former location of the waste UST. The estimated quantity of impacted soil, based solely on the maximum 1,1,2-TCE concentration in soil of 1 mg/kg, existed in an area of 10 feet by 20 feet by 1 foot. This area was located in the area of the former waste PCE tank (SWMU 10) (Reference No. 28; Reference No. 34).

A historic dump site (SWMU 14) was also identified on the subject property and was reportedly the result of operations conducted by Northrop Carolina in the 1960's. The site consists of an approximately one-acre area where construction and demolition debris, miscellaneous metal materials, tires, and 55-gallon drums were dumped. The site is located approximately 100 feet west of Beetree Creek. The former state North Carolina Department of Environment and Natural Resources (NCDENR, formerly NCDHR) conducted an inspection of this area in May 1985. During this inspection, the state obtained samples from the soil, sediment of Beetree Creek, and suspected leachate from the dump location. The results of these samples did not identify high concentrations of extractable inorganics, but results of numerous organic compounds were identified. Elevated concentrations of unknown organic compounds were identified during the laboratory analysis. These results could be attributed to wastes potentially buried within the dump area. These waste may include rocket fuel, munitions, warfare chemicals, and smoke bombs (Reference No. 18).

In 1988, Westinghouse Environmental Services was contracted to collect soil and groundwater samples at the subject property as part of an investigation relating to the waste PCE UST, which was removed in 1985. Soil samples collected from the site revealed elevated concentrations of acetone, methylene chloride, and PCE. The facility initially installed 19 shallow and deep groundwater monitoring wells to assess the potential impact to the groundwater associated with the potential releases (Reference No. 3; Reference No. 26).

On August 29, 1990, ADF and NCDENR, Hazardous Waste Section, entered into an Administrative Order on Consent. This order required an assessment of any contamination resulting from the operation of the USTs that historically contained raw and waste PCE. The

facility submitted closure/ post-closure plans to the state in order to properly remediate the impacted areas. The closure plans focused on soil activities to include soil excavation from the UST areas and backfilling the areas with clean fill and constructing a clay cap over the top of the impacted areas. In July 1992, NCDENR granted final approval of the closure/ post-closure plans (Reference No. 26).

Quarterly groundwater monitoring of the impacted groundwater was initiated in 1988. The monitoring results identified the presence of VOCs, including PCE, TCE, methylene chloride, chloroform, 1,1,1-trichlroethane and 1,2-dichloroethene. Other constituents identified above groundwater quality standard limits in one or more of the wells were chromium, barium, sodium, iron and manganese (Reference No. 28).

In October 1997, Mid-Atlantic Associates initiated the design and installation of a groundwater remediation system (SWMU 11) for the impacted groundwater resulting from the release from the waste PCE tank. Between November 1997 and April 1998, Mid-Atlantic installed a combination air sparging and SVE system, which covered an area approximately 420 feet wide by 170 feet and is located downgradient of the former waste PCE tank. The unit has been in operation since February 1998 with an average flow of 741 cubic feet per minute. Air samples have also been collected from the unit and analyzed for VOCs. Based on historic air samples obtained from the SVE system (SWMU 11) through July 2003, the system had removed approximately 129.49 total gallons of PCE (1,873.93 lbs.) since the initial start-up in February 1998 (Reference No. 28; Reference No. 18; Reference No. 26; Reference No. 35).

In 1998-99, United States Filter Corporation became the owner/operator of the site. In May 1999, Mid-Atlantic Associates submitted a modification to the 1994 Sampling and Analysis Plan. It was requested that the analysis for RCRA metals, iron, manganese and sodium be excluded from their sampling requirements. NCDENR agreed to this request in July 1999. The facility continues to monitor the groundwater system on a quarterly basis (Reference No. 28; Reference No. 18).

5.0 ENVIRONMENTAL SETTING

5.1 Site Location and Setting

The ADF facility is located on Warren Wilson College Road, Swannanoa, North Carolina, in Buncombe County. The geographical location of the facility is latitude 35° 36' 45" N and longitude 82° 25' 45" W. The location of the facility is shown on Figure 1. The ADF facility is bounded on the south by the Warren Wilson College Road. Further south are new residential homes under construction and an industrial facility named Owens Manufacturing; on the west by Old Beetree Creek road (State Road 2418); on the north by an inactive company named Tandy Corporation whose parent company is Radio Shack and further north by an inactive NPL site named Chemtronics Incorporated; and on the east by Beetree Creek. The entire ADF property comprises approximately 54 acres and includes a 157,613 square foot building that includes office space, a large manufacturing area, a maintenance garage, two loading docks, and a Quality Control laboratory. The facility property is partially surrounded by a chain-link fence topped with barbed wire. Access to the property is gained either by the front office or by a security gate that accesses the back of the facility operations (Reference No. 18; Reference No. 4).

5.1.1 Land Use

The ADF facility is currently active and has been used to manufacture textile products from approximately 1971 to the present. The Anvil Knitwear facility currently operates four shifts daily during the 24-hour period and is open seven days a week. The facility currently employs 575 full-time employees (Reference No. 4).

The nearest residences, currently under construction, to the facility are located on the south adjacent to Warren Wilson College Road. An industrial facility named Owens Manufacturing is located further south. A property historically owned by Chemtronics is located north of the subject property and is currently inactive. This site has been classified by the EPA as a National Priorities List (NPL) facility. Warren Wilson College is located approximately three quarters of a mile to the west of the property (Reference No. 18; Reference No. 4).

No federally designated rare or threatened species or critical habitats have been identified on the ADF subject property. Beetree Reservoir is located approximately 2.5 miles northeast of the site. The Pisgah National Forest and Blue Ridge Parkway are located within two to three miles to the north and west of the subject property (Reference No. 18).

5.1.2 Topography and Surface Water

The town of Swannanoa, Buncombe County area is characterized by gently rolling hills divided by small streams. The city of Black Mountain and the city of Asheville are located within five miles of the subject property. The immediate area surrounding the facility is relatively flat and slopes east down gradient to Beetree Creek (SWMU 13). The ADF facility is located approximately 100 feet west of Beetree Creek. The slope of the terrain from the facility to the creek is less than three percent. The facility stormwater run-off that is not captured by the facility stormwater system (SWMU 21) appears to have the potential to impact Beetree Creek. The Beetree creek flows southward into the Swannanoa River. Beetree Creek is classified as a WS-I stream, which means its "...waters used as sources of water supply for drinking, culinary,

or food processing purposes for those users desiring maximum protection for their water supplies. According to the North Carolina Division of Water Quality, WS-I waters are those within essentially natural and undeveloped watersheds with no permitted point source (wastewater) discharges." It is classified as a WS-I stream from Beetree Creeks source to the Asheville Water Supply Dam on Beetree Reservoir. The water continues to flow from the Asheville Water Supply Dam to the Swannanoa River. The Swananoa River is classified as a C stream from its source to the French Broad River. Beetree Reservoir is part of the Asheville Water Supply (Reference No. 18).

Additionally, there is a large surface water body that is located approximately 150-200 yards east of the facility's manufacturing building and approximately 100 yards north from the southern border of the facility property line (Reference No. 18).

5.1.3 Geology and Hydrogeology

The ADF site is located in Buncombe County, North Carolina, which lies within the Blue Ridge Physiographic Province of western North Carolina. The dominant rock types are meta-graywacke and muscovite-biotite schist. Bedrock in the Beetree Creek valley located adjacent to the site is characterized as a garnet mica schist. Most of the overburden in Buncombe County is saprolite, fluvial deposits, and topsoil. The unconsolidated overburden ranges from less than one foot to over 100 feet in thickness. Borings installed on the subject property indicate the surficial sediments consist of topsoil, fluvial silts, sand and clays, fill material, and saprolite (weathered schist). The unconsolidated sediments are underlain by bedrock composed of garnet mica schist, with the thickness of the unconsolidated sediments ranging from 26 to 64 feet below land surface (bls) (Reference No. 28).

Groundwater in the area is recharged by local precipitation. Many of the hydrologic units in Buncombe County owe their porosity and permeability to secondary structures such as fractures, joints and solution cavities. Well yields in the county range from 3 to 20 gallons per minute (gpm) with some as high as 60 gpm. In general, wells screened in bedrock have greater yields than those screened in the overlying unconsolidated sediments (Reference No. 28).

Two distinct hydrogeologic units appear to underlie the ADF site. A shallow surficial aquifer lies within the unconsolidated sediments to a depth of about 50 to 64 feet bls. This aquifer is underlain by a bedrock aquifer composed primarily of garnet mica schist. Groundwater in this aquifer may occur under confined and unconfined conditions depending on the thickness, extent and permeability of the overlying saprolite. Water level data indicates that the two aquifers are interconnected (Reference No. 28).

Groundwater movement in the surficial aquifer may be variable due to the heterogeneities in the surficial sediments and saprolite. Groundwater movement in the bedrock aquifer occurs primarily through joints, fractures and cleavage planes. Groundwater flow in the surficial aquifer is south/southeast. There appears to be an overall downward hydraulic gradient between the surficial and bedrock aquifers (Reference No. 28).

Hydraulic conductivity values were determined by recovery test data to range from 2.2×10^{-4} to 4.8×10^{-6} cm/sec. Using the average hydraulic conductivity of 2.3×10^{-4} cm/sec, an estimated hydraulic gradient of 1.3×10^{-2} and an effective porosity of 10%, the estimated groundwater flow velocity is approximately 31 feet per year (Reference No. 28).

In August 1993, as part of the groundwater assessment activities, a pump test was conducted to determine hydraulic properties. An analysis of the pumping test data indicated a transmissivity (T) value of 118 gallons/day/foot (g/d/ft). An average T value of 4,650 g/d/ft was calculated for four shallow wells, 7.850 g/d/ft was derived for five intermediate wells, and 6,725 g/d/ft was calculated for three bedrock wells (Reference No. 28).

6.0 SWMU AND AOC DESCRIPTIONS

Based on the PR and information gathered during the VSI, a total of 23 SWMUs and two AOCs were identified at the ADF facility. The names of these SWMUs and AOCs are listed in Attachment 1 and their locations are identified on Figure 2. Photographs of the SWMUs taken during the VSI are included in Appendix B.

6.1 SWMU 1 - Trash Receptacles

TYPE OF UNIT: Solid Waste Containers

PERIOD OF OPERATION: 1987 to present

PHOTOGRAPH NUMBER(S): 9 and 10

PHYSICAL DESCRIPTION AND CONDITION:

There are many plastic trash receptacles utilized within the manufacturing areas of the facility inside the main building. The receptacles receive the municipal solid waste that is generated by the manufacturing process and the employees. The Knitting Room contains fifteen 55-gallon mobile trash receptacles. The Dye House contains six 55-gallon trash receptacles and four large mobile trash receptacles that are approximately 6 feet by 4 feet. The Finishing Area contains twenty-six 55-gallon trash receptacles. All of the trash receptacles appeared to be in good condition (Reference No. 4; Reference No. 30).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

These individual trash receptacles receive daily waste originating from the facility's daily sweepings from the floor of the process areas in the main building and miscellaneous solid waste produced during daily routine operations (cotton fibers, plastic, employee trash, etc.). All of this waste is gathered and compacted at the facility compactor roll-off unit (SWMU 20). Waste Management Company is the contractor that is scheduled to pick up and remove the compacted waste two times a week and properly dispose of the waste in the local municipal solid waste landfill (Reference No. 4; Reference No. 30).

RELEASE PATHWAYS:

			Air (L)
			Surface Water (L)
			Soil (L)
Groundwater (L)	Subsurface Gas (L)		

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. In addition, according to facility representatives, no releases of nonhazardous or hazardous waste from this

unit have ever occurred. Finally, no visual evidence of a release (e.g., staining) was observed at the time of the VSI.

RECOMMENDATION:	No Further Action	(X)
	Confirmatory Sampling	( )
	RFI Necessary	( )

COMMENTS:

6.2 SWMU 2 - Air Collectors/ Filters

TYPE OF UNIT: Air Filtration

PERIOD OF OPERATION: 1987 to present

PHOTOGRAPH NUMBER(S): 11 and 12

PHYSICAL DESCRIPTION AND CONDITION:

Numerous air collectors/filters are operated inside the facility's Knitting Room. The units filter the air within the Knitting Room and remove/collect lint, which becomes entrained in the air as a result of the operation of the knitting machines. There are two types of air collectors/filters operated in this area of the facility. The first type of air collector/filter operates by drawing air in through a metallic mesh and then exhausting the air back into the room through an exhaust vent. Lint and threads are collected on the metallic mesh. The second type of air collector/filter draws air into an intake and exhausts the air through a canvas bag filter. Lint and threads are collected inside the bag filter (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

These units filter lint and dust from the Knitting Room air. The air collectors/filters are cleaned periodically, and the lint is placed in the Trash Receptacles (SWMU 1) located throughout the Knitting Room (Reference No. 4).

RELEASE PATHWAYS:

		Air (L)	Surface Water (L)
Groundwater (L)	Subsurface Gas (L)		Soil (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.3 SWMU 3 - Used Knitting Oil Storage Area

TYPE OF UNIT: Storage

PERIOD OF OPERATION: 1987 to present

PHOTOGRAPH NUMBER(S): 13 and 14

PHYSICAL DESCRIPTION AND CONDITION:

The used knitting oil storage area consists of a polyvinyl chloride (PVC) drum storage cabinet providing secondary containment located near the northeast corner of the Knitting Room. At the time of the VSI, the cabinet contained two plastic 55-gallon drums designated for the accumulation and storage of used knitting oil. Both drums were closed, and the cabinet was closed during the VSI. The drum storage cabinet was labeled with the words "waste oil only." The drum storage cabinet and plastic drums appeared to be in good condition with no visible leaks or evidence of past leaks. The unit is located on the concrete floor of the Knitting Room and does not have any cracks or scars (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Used knitting oil is generated during the servicing of the facility's knitting machines. This used oil is collected in five-gallon buckets and then transferred to the plastic 55-drums within the drum storage cabinet located in the used knitting oil storage area (SWMU 3). When the drums become full, Holsten Oil Company is called out to the facility to pick up and transport the used of for recycling (Reference No. 4).

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:	No Further Action		(X)
	Confirmatory Sampling	( )	
	RFI Necessary		( )

COMMENTS:

6.4 SWMU 4 - Secondary Containment for New Knitting Oil

TYPE OF UNIT: Secondary Containment

PERIOD OF OPERATION: 1987 to present

PHOTOGRAPH NUMBER(S): NA

PHYSICAL DESCRIPTION AND CONDITION:

The new knitting oil is contained in a 250-gallon tote and located inside 55-gallon drums. These containers are stored near the northeast corner of the Knitting Room and are placed in/on structures that offer secondary containment in case the containers leak. Drums of new knitting oil were observed to be located inside a PVC drum storage cabinet with secondary containment like that described in SWMU 3. The 250-gallon tote containing new knitting oil was placed on a pallet that provided secondary containment. The drum storage cabinet and the pallet with integral secondary containment appeared to be in good condition with no visible leaks or evidence of past leaks. The unit is located on the concrete floor of the Knitting Room and does not have any cracks or scars (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The secondary containment is designed to prevent leaks and/or spillage from containers of new knitting oil from flowing onto the floor of the Knitting Room and potentially impacting other areas of the facility building, flowing into floor drains within the facility building and impacting the facility's waste water treatment system, or even flowing to the area outside the facility building. During the VSI, no material was observed in the secondary containment of the drum storage cabinet, and approximately one inch of liquid was observed within the secondary containment of the 250-gallon tote (Reference No. 4).

RELEASE PATHWAYS:

		Air (L)	Surface Water (L)
Groundwater (L)	Subsurface Gas (L)		Soil (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.5 SWMU 5 - Parts Washers (4)

TYPE OF UNIT: Parts Washer

PERIOD OF OPERATION: 1987 to present

PHOTOGRAPH NUMBER(S): 15, 16, 43, and 44

PHYSICAL DESCRIPTION AND CONDITION:

There are four parts washing units that are located at the site. Two parts washers are located in the Knitting Parts Room. There is a small parts washer located on the eastern wall and a large parts washer (approx. 55 gallons) located on the western wall. The other two parts washers are located in the Maintenance Shop. A small parts washer is located on the north wall and a small parts washer is located on the south wall. All four parts washers appeared to be in good condition (Reference No. 4; Reference No. 30).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The parts washers located in the Knitting Parts Room are used to remove the residual cotton debris and old knitting oil from the small parts (e.g., needles) of the knitting machines. The parts washers located in the Maintenance Shop are general parts washers that are used to clean small mechanical parts and tools that are used at the facility. The parts washing liquid that was historically used in the parts washers was a petroleum naptha fluid and was disposed of by Safety Kleen. In March 1997, the facility switched to a premium solvent identified as "Smart Wash," a Safety Kleen premium solvent that has a higher flashpoint of 148° and is considered non-hazardous. The facility currently utilized the services of Safety Kleen to pick up and dispose of the parts washing fluid approximately once a quarter (Reference No. 4; Reference No. 30).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. In addition, according to facility representatives, no releases of nonhazardous or hazardous waste from this unit have ever occurred. Finally, at the time of the VSI, no visual evidence of a release (i.e., staining) was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.6 SWMU 6 - Compressed Air Cleaning Box and Collection Bin

TYPE OF UNIT: Self-contained waste handling unit

PERIOD OF OPERATION: 1987 to Present

PHOTOGRAPH NUMBER(S): 17

PHYSICAL DESCRIPTION AND CONDITION:

The compressed air cleaning box and collection bin is a wall mounted metal box that is approximately 3 feet by 3 feet by 2 feet in dimension and is located inside of the Knitting Parts Room. The front of the box is plexiglass and has two holes that allow an employee's arms access inside of the box. This unit contains an air hose that is used to blow off the majority of the cotton fibers and other materials from the small parts (e.g., needles) of the knitting machines. The floor of the box contains a hole that is surrounded by a plastic bag to funnel the removed residuals into a plastic waste barrel beneath the unit. This unit appeared to be in good condition during the VSI (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

This unit is utilized by the facility to remove the cotton fibers and other miscellaneous materials from the small parts (e.g., needles) of the knitting machines prior to being inserted into the Knitting Parts Room parts washers (SWMU 5). This prevents a majority of the cotton fibers and other miscellaneous materials from impacting the parts washing fluid in the parts washers. The materials that are removed from the knitting machine parts inside of this unit are funneled into a plastic waste barrel beneath the metal box and are disposed of as municipal solid waste. The primary waste handled are cotton fibers, dust and absorbed knitting oil that are deposited on and inside of the knitting machine parts during the knitting machine process (Reference No. 4).

RELEASE PATHWAYS:

		Air (L)	Surface Water (L)
Groundwater (L)	Subsurface Gas (L)		Soil (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. In addition, according to facility representatives, no releases of nonhazardous or hazardous waste from this unit have ever occurred. At the time of the VSI, no visual evidence of a release (e.g., staining) was observed.

RECOMMENDATION:

	No Further Action (X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.7 SWMU 7 - Secondary Containment for Tote Farm

TYPE OF UNIT: Secondary Containment

PERIOD OF OPERATION: 1976 to present

PHOTOGRAPH NUMBER(S): 18 and 19

PHYSICAL DESCRIPTION AND CONDITION:

The secondary containment for the facility's tote farm is located in the facility's Dye Receiving Area and consists of a concrete floor with a concrete cinder block dike. The tote farm has approximately eighteen (18) 250-gallon capacity totes containing a variety of chemicals used in the mixing the fabric dyes. The dimensions of the secondary containment were approximately 25 feet by 10 feet. The height of the secondary containment structure is approximately 24 inches. The secondary containment structure was sealed and painted and appeared to be in good condition with no visible leaks or past leaks. A floor drain was located in the center of the secondary containment structure. Facility representatives stated that the floor drain was connected to the facility's waste water treatment system (SWMU 12) by the facility's piping infrastructure (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The tote farm has approximately eighteen (18) 250-gallon capacity totes containing a variety of virgin chemicals used in mixing the fabric dyes. These chemicals include detergents, surfactants, bleach, peroxide enzyme, and acetic acid (Reference No. 4).

RELEASE PATHWAYS:

		Air (L)	Surface Water (L)
Groundwater (L)		Subsurface Gas (L)	Soil (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	( )
Confirmatory Sampling	(X)[1]
RFI Necessary	( )

COMMENTS:

[1] Based on the age of the piping infrastructure and the unknown nature of the pipe's integrity, additional investigation of the unit's integrity should be performed to determine whether a release has occurred. In the event the integrity is compromised or breached, confirmatory sampling of the soil to the depth of groundwater in the vicinity of the drains, pipes and catchment basins may be necessary to determine whether releases of hazardous constituents have occurred. Otherwise, documentation of the unit's integrity can be provided to support a no further action designation.

6.8 SWMU 8 - Secondary Containment in Dye Mixing Room

TYPE OF UNIT: Secondary Containment

PERIOD OF OPERATION: 1976 to present

PHOTOGRAPH NUMBER(S): 22

PHYSICAL DESCRIPTION AND CONDITION:

This secondary containment system is located in the facility's Dye Mixing Room on the second floor of the facility building. The system provides secondary containment for approximately half of the dye mixing vessels located within this room. The secondary containment system is constructed of concrete and has a six-inch berm. At the time of the VSI, no cracks or scarring was observed in the concrete floor or berm. The unit is approximately 120 feet by 6 feet and is sloped toward the south. Located at the south end of the secondary containment is a drain which is reportedly connected to the facility's waste water treatment system (SWMU 12) by the facility's piping infrastructure (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

After the non-hazardous dyes are mixed with the associated chemicals (SWMU 7) and the mixture is sent to the appropriate dying machine, the dye mixing vessels are rinsed and the rinse waters are discharged to the secondary containment. The rinse waters then flow through the secondary containment to the drain located at its southern end. The rinse waters are then conveyed to the facility's waste water treatment system (SWMU 12) (Reference No. 4).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action		( )
Confirmatory Sampling	(X)[1]	
RFI Necessary		( )

COMMENTS:

[1] Based on the age of the piping infrastructure, and the unknown nature of the pipe's integrity, additional investigation of the unit's integrity should be performed to determine whether a release has occurred. In the event the integrity is compromised or breached, confirmatory sampling of the soil to the depth of groundwater in the vicinity of the drains, pipes and catchment basins may be necessary to determine if releases of hazardous constituents have occurred. Otherwise, documentation of the unit's integrity can be provided to support a no further action designation.

6.9 SWMU 9 - Interior Floor Drains/Trench Drains

TYPE OF UNIT: Drain

PERIOD OF OPERATION: 1971 - Present

PHOTOGRAPH NUMBER(S): 20

PHYSICAL DESCRIPTION AND CONDITION:

Floor drains and trench drains are located throughout the Dye House and Finishing Area of the facility. The unit consists of many floor drains and grated floor trench drains in the facility's concrete floor. These drains are in place to assist with the containment of any spills that may occur within the facility. Fluids that enter the drains are piped to the facility's Waste Water Collection/Treatment System (SWMU 12). This unit is vast and covers a large expanse of linear footage within the facility. The drains and associated system appeared to properly draining and appeared to be in good condition during the VSI (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The majority of the spilled material that the drainage system receives includes water, dye, and chemicals used throughout the manufacturing area's Dye House and Finishing Area (including SWMU 7 and 8). The dye is reportedly nonhazardous even after mixing with the chemicals that are added during the dyeing process (i.e., detergents, surfactants, bleach, and peroxide enzyme). The drains also receive some solids that are generated throughout the manufacturing areas that include cotton fibers, dust, and other miscellaneous materials that originate from the facility processes. The drainage system is designed to gravity flow all of the spilled material into the facility's Waste Water Collection/Treatment System (SWMU 12) (Reference No. 4).

RELEASE PATHWAYS:

		Air (L)	Surface Water (L)
Groundwater (L)		Subsurface Gas (L)	Soil (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. In addition, according to facility representatives, no releases of nonhazardous or hazardous waste from this unit have ever occurred. At the time of the VSI, no visual evidence of a release (e.g., staining) was observed.

RECOMMENDATION:

No Further Action		( )
Confirmatory Sampling	(X)[1]	
RFI Necessary		( )

COMMENTS:

[1] Based on the age of the piping infrastructure, and the unknown nature of the pipe's integrity, additional investigation of the unit's integrity should be performed to determine whether a release has occurred. In the event the integrity is compromised or breached, confirmatory sampling of the soil to the depth of groundwater in the vicinity of the drains, pipes and catchment basins may be necessary to determine whether releases of hazardous constituents have occurred. Otherwise, documentation of the unit's integrity can be provided to support a no further action designation.

6.10 SWMU 10 - Former Waste PCE Tank Area

TYPE OF UNIT: UST

PERIOD OF OPERATION: 1971 to 1985

PHOTOGRAPH NUMBER(S): 26

PHYSICAL DESCRIPTION AND CONDITION:

Located near the southeast corner of the facility building was an underground storage tank that was used to store spent TCE between 1971 and 1985. This tank, along with another UST used to store new TCE, was reportedly removed by the facility in 1985. The facility conducted confirmatory sampling in 1985 following the removal of the USTs. The analysis of these soil samples resulted in the detection of 1,1,2-trichloroethylene in the former location of the waste UST (Reference No. 18; Reference No. 28).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

This unit was used to store spent TCE from the facility's dry cleaning process.

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

The facility reportedly removed this tank in 1985. The facility conducted confirmatory sampling in 1985 following the removal of the UST. The analysis of these soil samples resulted in the detection of 1,1,2-trichloroethylene in the former location of the waste UST.

In 1988, Westinghouse Environmental Services was contracted to collect soil and groundwater samples at the area surrounding the former underground storage tank. Soil samples collected from the site revealed elevated concentrations of acetone, methylene chloride, and PCE.

The facility initially installed 19 shallow and deep groundwater monitoring wells to assess the potential impact to the groundwater associated with the potential releases. Groundwater Quarterly groundwater monitoring identified volatile organic compounds including PCE, TCE, methylene chloride, chloroform, 1,1,1-trichlroethane and 1,2-dichloroethene. Other constituents identified were chromium, barium, sodium, iron and manganese that were all above the groundwater quality standard limits in one or more of the wells at that time.

NCDENR gave approval for Closure Certification to the facility in December 1992 for proper remediation of the release and impacted area associated with the waste PCE tank according to

the Administrative Order on Consent. According to the July 2003, Voluntary Groundwater Remediation Effectiveness report, "PCE concentrations have decreased since the April 2003 sampling event in six of the fourteen groundwater samples collected ranging from 1 µg/L to 20 µg/L of PCE. Additionally, PCE concentrations have increased since the April 2003 sampling event in seven of the fourteen groundwater samples collected." PCE was detected in the groundwater samples collected from MW-4s, MW-7s, and MW-15s at historically low concentrations. Continued reduction in source area contaminant concentrations is expected to reduce the horizontal and vertical migration of the contaminants of concern." (Reference No. 18; Reference No. 26; Reference No. 28; Reference No. 35; Reference No. 38).

RECOMMENDATION:		
	No Further Action	(X)[1]
	Confirmatory Sampling	( )
	RFI Necessary	( )

COMMENTS:

[1] The no further action recommendation for this SWMU is contingent upon continued groundwater remediation and monitoring per the closure plan and as required by the NCDENR.

6.11 SWMU 11 - Sparging/SVE Remediation System

TYPE OF UNIT: Remediation System

PERIOD OF OPERATION: 1997 to present

PHOTOGRAPH NUMBER(S): 26

PHYSICAL DESCRIPTION AND CONDITION:

In October 1997, the facility contracted the design and installation of a soil/groundwater remediation system for the Former Waste PCE Tank Area. The remediation system consisted of a combination air sparge and SVE system, which covers an area approximately 420 feet wide by 170 feet and is located downgradient of the Former Waste PCE Tank Area. The unit has been in operation since February 1998 with an average flow of 741 cubic feet per minute. In 2001, a second air sparge/SVE system was installed at the facility beneath what is now the Shipping/Receiving Area of the facility. According to facility representatives, the average air flow of this system is approximately 600 cubic feet per minute.

The blower units for each of the SVE units are located in separate, stand-alone remediation sheds. One of these sheds is located outside near the southeast corner of the facility building, and the other shed is located outside, adjacent to the east wall of the facility building (Reference No. 28; Reference No. 18; Reference No. 26; Reference No. 35).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Air samples have also been collected from the unit and analyzed for VOCs. Based on historic air samples obtained from the SVE system through July 2003, the system had removed approximately 129.49 total gallons of PCE (1,873.93 lbs.) since the initial start-up in February 1998 (Reference No. 28; Reference No. 18; Reference No. 26; Reference No. 35).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OF RELEASE(S):

According to Kirk Pollard of Mineral Springs Environmental, each of the blowers exhausts directly to the atmosphere without first passing through any type of filtration unit(s). Mr. Pollard stated that the local or state environmental regulatory agencies did not require a discharge/air permit.

RECOMMENDATION: No Further Action (X)[1]
Confirmatory Sampling ( )

RFI Necessary ( )

COMMENTS:

[1] The no further action recommendation for this SWMU is contingent upon continued groundwater remediation and monitoring per the closure plan and as required by the NCDENR.

6.12 SWMU 12 - Waste Water Collection/Treatment System

TYPE OF UNIT: Waste Water Treatment System

PERIOD OF OPERATION: 1991- Current

PHOTOGRAPH NUMBER(S): 27, 28, and 29

PHYSICAL DESCRIPTION AND CONDITION:

This system consists of a historical Basement Tank, a historical Basement pH Adjustment Unit, two Pre-treatment Screens, a 1,000,000-gallon capacity concrete Treatment Tank, a current pH Adjustment Unit, and a Weir Unit (Reference No. 4).

The Basement Tank is a subgrade concrete tank located beneath the basement floor of the facility building. The capacity of this tank is reportedly 10,000 gallons. ADF used this tank historically prior to the addition of the new 1,000,000-gallon capacity Treatment Tank to collect and treat the facility's dye waste water and chemicals prior to pH adjustment and final discharge to the POTW. This tank is currently a part of the waste water flow (i.e., waste water passes through) only and is no longer a part of the waste water treatment process (Reference No. 4).

The Basement pH Adjustment Unit is located in the bottom floor of the facilities manufacturing building and was historically used to adjust the pH of the waste water discharge from the Basement Tank. This unit is no longer in use (Reference No. 4).

The Pre-treatment Screens are located outside the facility building adjacent to the 1,000,000-gallon capacity water Treatment Tank. The Pre-treatment Screens remove any large solids that are entrained in the waste water before the waste water is discharged into the 1,000,000-gallon capacity Treatment Tank. These solids are gathered into facility waste receptacles and disposed of in a municipal solid waste landfill (Reference No. 4).

The facility uses the 1,000,000-gallon capacity Treatment Tank to treat and temporarily hold facility waste water. This unit was reportedly installed in the early to mid-1990's in order to handle the facility's increased volume of waste water. The size of the Treatment Tank is approximately 120 feet in diameter and 14 feet in depth. The waste water in this unit is aerobically treated by aeration while being stored inside of the tank. The waste water is then adjusted for pH and discharged to the POTW for final treatment. The tank reportedly discharges 1,000,000 gallons of waste water a day, which is equivalent to 694 gallons per minute (Reference No. 4).

A pH Adjustment Unit is located prior to final discharge of the waste water from the 1,000,000-gallon capacity Treatment Tank. The facility is permitted to discharge waste water to the POTW with a pH that ranges from 6 - 10 standard units. The reported average pH of the waste water is 8 - 10 standard units (Reference No. 4; Reference No. 31).

The treated waste water is finally discharged through the Weir Unit. The Weir Unit is used to measure the volume and rate of the waste water being discharged from the facility to the POTW. (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Two primary waste streams are handled at the unit. The first waste stream is the solids that result from the waste water passing through the Pre-treatment Screens. These solids may consist of pieces of fabric, cotton threading, paper, and plastic that may have become entrained in the waste water during facility operations. These solids are placed into facility waste receptacles and disposed of in a municipal solid waste landfill. (Reference No. 4)

The second waste stream handled by this unit is the waste water that originates from the dyeing, softening, and drying processes of the cotton fabric. During this process, large quantities of water, nonhazardous dye, and chemicals are generated. The chemicals used in the dyeing process include detergents, surfactants, bleach, and peroxide enzyme. The waste water is ultimately piped into the 1,000,000-gallon capacity concrete Treatment Tank and aerated prior to discharge. The facility's waste water permit (Permit No. S-021-01) requires that the facility monitor the pH of the waste water prior to discharge. The permissible pH limit for the waste water effluent is between 6 and 10 standard units. The facility reportedly uses granular potash to help control the pH of the effluent from the waste water system. After the pH is adjusted, the waste water effluent is piped to the POTW for final treatment (Reference No. 4)

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. In addition, according to facility representatives, no releases of nonhazardous or hazardous waste from this unit have ever occurred. At the time of the VSI, no visual evidence of a release (e.g., staining) was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.13 SWMU 13 - Eight-inch Drain

TYPE OF UNIT: Drain

PERIOD OF OPERATION: 1976 - Unknown,

PHOTOGRAPH NUMBER(S): 30 and 31

PHYSICAL DESCRIPTION AND CONDITION:

This unit is a historical corrugated drain pipe that is located adjacent to the southern property line and historically discharged into Beetree Creek located at the southwest corner of the property. The unit is currently capped with a concrete man way, located approximately 1,100 feet east of the manufacturing building, and has been joined to the facility's POTW sewerage line. The function of the unit is reportedly to act as a groundwater funnel for a French drain that runs along the facility's southern property line. Currently, the area of historic discharge at the creek is overgrown with native flora and fauna (Reference No. 4; Reference No. 28).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

A release of 50 gallons of 10% PCE and 200 gallons of 100% PCE occurred on August 12, 1976. The release entered into an eight-inch corrugated drain pipe (SWMU 14) located on the Winston Mills, Inc. property that ultimately discharged into Beetree Creek. The drain currently receives groundwater beneath the facility that could contain VOCs originating from the historical release from the facility's former waste PCE tank (SWMU 10) (Reference No. 28; Reference No. 32; Reference No. 33; Reference No. 39).

RELEASE PATHWAYS: Air (L) Surface Water (L) (M) Soil

Groundwater (M) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

A spill of primarily PCE reportedly occurred in approximately 1971 and entered into this drain pipe that historically discharged into Beetree Creek. The facility initiated a requested cleanup of the impacted area on August 14, 1976 to remove visible residual from the creek and assumed impacted areas. NCDENR collected surface water samples in 1988 from this area that resulted in identifying hazardous constituents present in Beetree Creek that included 1,1,1-trichloroethane (4.3 µg/L), PCE (330 µg/L), and chloroform (21 µg/L). Westinghouse Environmental Services collected samples in 1988 from this area that resulted in identifying acetone, methylene chloride and PCE. These constituents could be listed as F001 and F003. Specifically, a sample obtained from the outfall of the drain identified PCE at a level of 290 ppb. The current maximum contaminant level (MCL) for PCE is 0.005 mg/L or 5 ppb (Reference No. 28; Reference No. 32; Reference No. 33; Reference No. 4; Reference No. 37) .

RECOMMENDATION:	No Further Action		( )
	Confirmatory Sampling	(X)[1]	
	RFI Necessary		( )

COMMENTS:

[1] It cannot be determined with the available documents or sampling history as to whether or not this area has been properly characterized and/or remediated. Based upon the historic spills and available sample information, it is recommended that the facility sample the historic discharge area from the drain into Beetree Creek and areas along the location of the eight-inch drain pipe and associated path (i.e., French drain).

6.14 SWMU 14 - Old Dump Area

TYPE OF UNIT: Dump

PERIOD OF OPERATION: Late 1960's to Present

PHOTOGRAPH NUMBER(S): 32, 33, 34, and 35

PHYSICAL DESCRIPTION AND CONDITION:

A historic dump site has been identified on the subject property and was reportedly the result of operations conducted by Northrop Carolina in the 1960's. The site consists of an approximately one-acre area where construction and demolition debris, miscellaneous metal materials, tires, and 55-gallon drums were dumped. The site is located approximately 100 feet west of Beetree Creek. During a May 1985 inspection, several areas of discolored soils and drums were identified and sampled. The site is currently overgrown with heavy flora and fauna, and only the perimeter of the site is easily accessible. During the VSI, several materials were identified in the dump area. These materials included rusting or badly decomposed drums, construction and demolition material, ductile metallic material, tires, and other unidentified metallic materials (Reference No. 18; Reference No. 15; Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The NCDENR conducted an inspection of this area in May 1985. During this inspection, the state observed that the area was heavily overgrown and contained rubble, metal duct work, and partially buried drums. The state obtained samples during this inspection from the soil, sediment of Beetree Creek, and suspected leachate from the dump location. The results of these samples did not identify high concentrations of extractable inorganics but results of numerous organic compounds were detected; however, specific organic compounds were not identified. The state indicated that the results could be attributed to the waste reportedly buried in the dump area, including rocket fuel, munitions, warfare chemicals, and smoke bombs. During their inspection, the area contained scattered discolored soils and uncovered drums. The state also indicated that the site contained an unknown number of covered drums (Reference No. 18; Reference No. 15; Reference No. 4).

RELEASE PATHWAYS: Air (L) Surface Water (M) Soil (M)
Groundwater (M) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

The ADF facility contacted Aquaterra, Inc. in September 1994 to obtain groundwater and soil samples from key areas at the ADF property. One area specifically identified during this sampling event was the Old Dump Area. Two monitoring wells (MW) were installed in the area

of the Old Dump Area. The first MW is identified as MW-22 and is located immediately north of suspected dump area. The second MW is identified as MW-23 and is located immediately southwest of the suspected dump area. At the time of installation for MW-22, the contractor reported that the first two drilling attempts encountered buried drums. The third attempt was successful, and MW-22 was installed to a depth of 15 feet below ground surface (bgs). MW-23 was specifically installed along the edge of the alleged leachate pool that formed southwest of the Old Dump Area. The final depth of MW-23 was at a depth of 13 feet bgs. The samples collected from each monitoring well were analyzed for VOCs, semi-VOCs, and priority pollutant metals. The results of the sample's did not identify VOCs or semi-VOCs above the maximum detection limits (MDLs). However, concentrations exceeding the North Carolina Groundwater Quality Standards (2L Standards) for priority pollutant metals were identified in both monitoring wells. The results for MW-22 were 0.127 mg/L of cadmium, 0.588 mg/L of chromium, 1.13 mg/L of copper, 0.384 mg/L of lead, 0.604 mg/L of nickel, and 2.23 mg/L of zinc. The results for MW-23 were 0.019 mg/L of cadmium, 0.079 mg/L of chromium, 0.059 mg/L of lead, and 0.109 mg/L of nickel. The North Carolina groundwater standards for these priority pollutant metals are 0.005 mg/L for cadmium, 0.05 mg/L for chromium, 1.0 mg/L for copper, 0.015 mg/L for lead, 0.01 mg/L for nickel, and 2.1 mg/L for zinc. (Reference No. 15).

RECOMMENDATION:

No Further Action		( )
Confirmatory Sampling	( )	
RFI Necessary		(X)[1]

COMMENTS:

[1] An RFI is recommended for this unit. Based on the visual site inspection of this area dated April 3, 1986, and the groundwater samples collected during the September 1994 investigation, there is reason to believe that this area contains wastes that continue to be a potential threat to the environment. Further investigation is recommended to fully characterize the nature and extent of this contamination.

6.15 SWMU 15 - Roll-off Container (North side)

TYPE OF UNIT: Roll-off Container

PERIOD OF OPERATION: 2003 to present

PHOTOGRAPH NUMBER(S): 36

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located outside, adjacent to the facility's north wall. The unit consists of one 40-cubic yard capacity steel roll-off box. The roll-off box is owned by Biltmore Iron and Metal Company and is leased to the facility while it completes its renovation/construction activities. Facility representatives stated that construction/renovation activities should be completed by September 2004 (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The roll-off box is leased from the Biltmore Iron and Metal Company. According to facility representatives, only scrap metal generated during the facility's renovation/construction activities is to be placed inside the roll-off box. This material will then be transported by Biltmore Iron and Metal Company to be recycled. During the VSI, two plastic 55-gallon drums were observed inside the roll-off container. Facility representatives stated that the drums should not be in the roll-off and that they would be removed (Reference No. 4).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (M)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.16 SWMU 16 - Former Drum Storage Area

TYPE OF UNIT: Drum Storage

PERIOD OF OPERATION: Unknown to 1994

PHOTOGRAPH NUMBER(S): 38

PHYSICAL DESCRIPTION AND CONDITION:

The Former Drum Storage Area is located in the parking lot on the north side of the facility building. According to facility personnel, the dimensions of the Former Drum Storage Area were approximately 15 feet by 10 feet. The total number of drums stored in this area is unknown. At the time the unit was active, the storage area was at the edge of the existing parking lot and the drums were stored directly on the ground surface. The drums were removed in 1994 and the area was paved with asphalt in approximately 2000 as the facility extended and enlarged its parking area (Reference No. 4, Reference No. 40).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The Former Drum Storage Area was used to temporarily store 55-gallon drums containing drill cuttings, development water and purge water generated during the installation of the facility's Sparging/SVE Remediation Systems (SWMU 11). The drill cuttings, development water and purge water were reportedly contaminated with PCE, TCE, methylene chloride, chloroform, 1,1,1-trichlroethane and 1,2-dichloroethene (Reference No. 22).

RELEASE PATHWAYS: Air (L) Surface Water (L) (M) Soil

Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.17 SWMU 17 - Secondary Containment for Chemical Tanks

TYPE OF UNIT: Secondary Containment

PERIOD OF OPERATION: 1971 to present

PHOTOGRAPH NUMBER(S): 39

PHYSICAL DESCRIPTION AND CONDITION:

The Secondary Containment for Chemical Tanks is located outside, near the northwest corner of the facility building. The unit has a four-foot high containment wall around its perimeter and a concrete base. The containment wall is constructed of concrete cinder blocks and appeared to be in good condition. The concrete floor and containment wall were painted and sealed. Inside the secondary containment were four aboveground storage tanks used to store new chemicals for use in the manufacturing process. The approximate dimension of the secondary containment is 50 feet long and 20 feet wide (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Inside the secondary containment were four aboveground storage tanks used to store new chemicals. Two of the aboveground storage tanks (each with a capacity of 5,000 and 1,000 gallons) contained salt brine used in the fabric softening process. One aboveground storage tank (with the capacity of 5,000 gallons) contained acetic acid used in the dyeing process. The last aboveground storage tank (with a capacity of 10,000 gallons) contained hydrogen peroxide also used in the dyeing process. The secondary containment system is designed to contain any spills or leaks from these aboveground storage tanks (Reference No. 4; Reference No. 36).

RELEASE PATHWAYS: Air (L) Surface Water (L) (M) Soil
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.18 SWMU 18 - Secondary Containment for Fuel Oil Tanks

TYPE OF UNIT: Secondary Containment

PERIOD OF OPERATION: 1971 to present

PHOTOGRAPH NUMBER(S): 40

PHYSICAL DESCRIPTION AND CONDITION:

The Secondary Containment for Fuel Oil Tanks is located outside, near adjacent to the northwest side of the facility building. The unit has a four-foot high containment wall around its perimeter and a concrete base that appeared to be in good condition. The containment wall is constructed of concrete cinder blocks. The concrete floor and containment wall were painted and sealed. Inside the secondary containment are four 20,000-gallon capacity vertical aboveground storage tanks. The tanks contain # 2 and # 6 fuel oil that is used to fire the facility's boilers. The approximate dimension of the secondary containment is 60 feet long and 20 feet wide (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Located inside the secondary containment system were four 20,000-gallon capacity vertical aboveground storage tanks. Two of the tanks contain #2 fuel oil, and the remaining two tanks contain #6 fuel oil. The secondary containment system is designed to contain any spills or leaks from these aboveground storage tanks (Reference No. 4).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. In addition, according to facility representatives, no releases of nonhazardous or hazardous waste from this unit have ever occurred. At the time of the VSI, no visual evidence of a release (e.g., staining) was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.19 SWMU 19 - Roll-off Container (West)

TYPE OF UNIT: Roll-off Container

PERIOD OF OPERATION: 2003 to present

PHOTOGRAPH NUMBER(S): 41

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located outside, adjacent to the facility's west wall. The unit consists of one 40-cubic yard capacity steel roll-off box. The roll-off box is owned by Waste Management Company and is leased to the facility while it completes its renovation/construction activities. Facility representatives stated that construction/renovation activities should be completed by September 2004 (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The roll-off box is leased from the Waste Management Company. According to facility representatives, only non-metallic construction debris generated during the facility's renovation/construction activities is to be placed inside the roll-off box. When full, the construction debris is transported by the Waste Management Company to be disposed of in a solid waste landfill. During the VSI, only construction debris was observed inside the roll-off container (Reference No. 4).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (M)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.20 SWMU 20 - Roll-off Container with Compactor (West side)

TYPE OF UNIT: Roll-off Container

PERIOD OF OPERATION: 1971 to present

PHOTOGRAPH NUMBER(S): 42

PHYSICAL DESCRIPTION AND CONDITION:

The unit is located outside, adjacent to the facility's west wall beneath a metal canopy. The unit consists of one 40-cubic yard capacity steel roll-off box with a compactor unit attached. The roll-off box is owned by Waste Management Company and is leased to the facility (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The roll-off box is leased from the Waste Management Company. According to facility representatives, only nonhazardous refuse (i.e., paper, packaging, lint, cardboard, floor sweepings, etc.) generated during the facility's normal operations is placed inside the roll-off box. When full, waste is transported by the Waste Management Company to be disposed of in a solid waste landfill (Reference No. 4).

RELEASE PATHWAYS:

Air (L)		Surface Water (L)	Soil (M)
Groundwater (L)	Subsurface Gas (L)		

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.21 SWMU 21 - Storm Water Drains

TYPE OF UNIT: Drain

PERIOD OF OPERATION: 1971 to present

PHOTOGRAPH NUMBER(S): NA

PHYSICAL DESCRIPTION AND CONDITION:

There are three storm water drains located outside the facility building. Two of the storm water drains are located west of the roll-off containers (SWMU 19 and 20) on the west side of the facility building. One storm water drain is located on the north side of the facility building, east of the secondary containment for chemical tanks (SWMU 17). All three of the storm water drains are approximately two feet by two feet square. The depth of each drain is approximately two feet, and the drain is constructed of concrete. According to facility representatives, each of the storm water drains discharge ultimately into Swannanoa River (Reference No. 4, Reference No. 40).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

The storm water drains are used to convey storm water from rain events to off-site drainage pathways. Facility representatives stated that no other material is discharged from the facility to these storm water drains (Reference No. 4).

RELEASE PATHWAYS: Air (L) Surface Water (M) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.22 SWMU 22 - Used Oil Storage Area (Third Floor)

TYPE OF UNIT: Storage

PERIOD OF OPERATION: 1987 to present

PHOTOGRAPH NUMBER(S): 45

PHYSICAL DESCRIPTION AND CONDITION:

The Used Oil Storage Area is located on the third floor of the facility building in a room used to stage empty 55-gallon drums prior to their removal by the suppliers. The unit consists of two steel 55-gallon drums stored on a PVC pallet with integral secondary containment. The drums were labeled with the words "used oil only." One of these drums was closed and the other drum was open. The drum and pallet with integral secondary containment appeared to be in good condition with no visible leaks or evidence of past leaks. The unit is located on the concrete floor (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

Used oil is generated during the servicing of the facility's machinery. This includes gear oil, hydraulic oil, and fuel oil. The used oil is collected in five-gallon buckets and then transferred to the 55-gallon drums. When the drums become full, the Holsten Oil Company is called out to the facility to pick up and transport the used for recycling (Reference No. 4).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. According to facility representatives, no releases of nonhazardous or hazardous waste from this unit have occurred. At the time of the VSI, no visual evidence of a release was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.23 SWMU 23 - Storage Area along North Fence Line

TYPE OF UNIT: Storage Area

PERIOD OF OPERATION: 2002 - present

PHOTOGRAPH NUMBER(S): 37

PHYSICAL DESCRIPTION AND CONDITION:

This area is located north adjacent to the facility's chain link fence. The area is linear and extends approximately 200 yards along the fence. The area is used to store empty plastic waste handlers and product tanks that are no longer in service. This area appeared to be in good condition during the VSI inspection (Reference No. 4).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

This area is used by the facility to store empty plastic waste handlers and metal product tanks that are no longer being used. The facility reported that they will contact a plastic and metal recycling company to properly recycle or dispose of the materials. There is also a fiberglass tank currently being stored in the area. The facility reported that they will also properly recycle or dispose of this tank (Reference No. 4).

RELEASE PATHWAYS: Air (L) Surface Water (L) Soil (L)
Groundwater (L) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

No evidence of a release from this unit was identified in the available file material. In addition, according to facility representatives, no releases of nonhazardous or hazardous waste from this unit have ever occurred. At the time of the VSI, no visual evidence of a release (e.g., staining) was observed.

RECOMMENDATION:

No Further Action	(X)
Confirmatory Sampling	( )
RFI Necessary	( )

COMMENTS:

6.24 AOC 1 - Former Disturbed Soil Area

TYPE OF UNIT: Historic dump

PERIOD OF OPERATION: Unknown

PHOTOGRAPH NUMBER(S): NA

PHYSICAL DESCRIPTION AND CONDITION:

These historic areas were identified during a Phase II site visit by Roy F. Weston, Inc. in February 1992. A site visit was conducted to delineate the sources of the known groundwater PCE plumes beneath the facility that originated from the subject property. These specific areas were initially observed in a 1988 aerial photograph and appeared to be areas of cleared vegetation. The first area is located approximately 100 feet north of the northwest corner parking area located north of the manufacturing building in 1992. For the purpose of this RFA, this area is identified as A and is approximately 45 feet in diameter. The second area B is located approximately 60 feet east northeast of A and is approximately 70 feet wide and 80 feet long (Reference No. 29).

WASTES AND/OR HAZARDOUS CONSTITUENTS MANAGED:

According to the Roy F. Weston, Inc. report, several materials were found during the soil sampling events in areas A and B. The materials observed include cloth scraps, metal piping, empty motor oil cans, glass bottles, construction debris, metal fragments, and lint. The report also indicated that based on the site investigation and review of the aerial photographs, it was possible that these areas were used historically as disposal areas (Reference No. 29).

RELEASE PATHWAYS:

Air (L) Surface Water (L) Soil (M)
Groundwater (M) Subsurface Gas (L)

HISTORY AND/OR EVIDENCE OR RELEASE(S):

As part of the Phase II site investigation that was performed at the ADF facility in February 1992, eight soil borings were installed in the AOC 1 area and samples were collected and analyzed for VOCs. Two soil boring advanced in area B failed to detect any VOCs above detection limits. Analysis of soil samples obtained from area A identified PCE, xylene, and toluene. The maximum concentration of PCE was 295 ug/kg, which was detected at a depth of 4 - 6 feet bgs. A deeper sample (6 - 8 feet bgs) from the same boring contained 74 ug/kg of PCE. Additionally, toluene (16 ug/kg) and xylene (12 ug/kg) were also detected; however, concentrations were below the analytical detection limits. Concentrations of PCE in soils in area A exceed the North Carolina Hazardous Waste Section Soil Screening Level for the Protection of Groundwater of 7.42 ug/kg.

RECOMMENDATION:

No Further Action		( )
Confirmatory Sampling	( )	
RFI Necessary		(X)[1]

COMMENTS:

[1] Based on soil sampling results from the Phase II site investigation, PCE concentrations in soil borings SB-7 and SB-2 in area A exceed relevant screening criteria. No additional soil sampling has been conducted north of these soil borings. As a result, it does not appear that the horizontal extent of contamination associated with area A has been adequately investigated. Additional evaluation of the PCE contamination identified in area A is recommended and, if necessary, additional characterization of the nature and extent of contamination should be performed. Continued groundwater remediation and monitoring is also recommended per the closure plan and as required by the NCDENR.

7.0 REFERENCES

1. Aquaterra, Inc. 1992. Correspondence to NCDEHNR Regarding April 1992 Quarterly Groundwater Monitoring Report. July 13, 1992

2. Aquaterra, Inc. 1992. Phase II Groundwater Assessment Report. August 3, 1992.

3. Aquaterra, Inc. 1992 Post-Closure Groundwater Sampling and Analysis Plan. September 2, 1992.

4. Booz Allen Hamilton. 2004. Visual Site Inspection Logbook. June 2, 2004.

5. Aquaterra, Inc. 1992. Correspondence to Womble, Carlyle, Sandridge, & Rice Regarding October 1992 Quarterly Groundwater Monitoring Report. October 23, 1992.

6. Aquaterra, Inc. 1993. Correspondence to Womble, Carlyle, Sandridge, & Rice Regarding Phase III Groundwater Assessment Report. January 6, 1993.

7. Aquaterra, Inc. 1993. Correspondence to Womble, Carlyle, Sandridge, & Rice Regarding January 1993 Post-Closure Semiannual Groundwater Monitoring Report. March 15, 1993.

8. Aquaterra, Inc. 1993. Phase IV Groundwater Assessment Report. April 28, 1993.

9. Aquaterra, Inc. 1993. Correspondence to Womble, Carlyle, Sandridge, & Rice Regarding Phase V Groundwater Assessment Work Plan. August 30, 1993.

10. Aquaterra, Inc. 1993. Correspondence to Womble, Carlyle, Sandridge, & Rice Regarding July 1993 Post-Closure Semiannual Groundwater Monitoring Report. September 24, 1993.

11. Aquaterra, Inc. 1993. Correspondence to Womble, Carlyle, Sandridge, & Rice Regarding July 1993 Phase V Progress Report. September 28, 1993.

12. Aquaterra, Inc. 1993. Phase VI Groundwater Assessment Report. December 16, 1993.

13. Aquaterra, Inc. 1994. Correspondence to NCDEHNR Regarding 1993 Annual Groundwater Quality Assessment Report. March 1, 1994.

14. Aquaterra, Inc. 1994. Correspondence to Womble, Carlyle, Sandridge, & Rice Regarding January 1994 Post-Closure Semiannual Groundwater Monitoring Report. March 4, 1994.

15. Aquaterra, Inc. 1994. Soil and Groundwater Sampling Report. October 12, 1994.

16. Aquaterra, Inc. 1995. Post-Closure Semiannual Groundwater Monitoring Report. February 22, 1995.

17. Aquaterra, Inc. 1996. Revised Phase VII Groundwater Assessment Work Plan. January 23, 1996.

18. NCDENR. 1986. Site Inspection Report Regarding Old Dump Area. April 3, 1986.

19. NCDENR. 1994. Correspondence to Pelikan, Inc. Regarding Second Quarter 1994 Groundwater Monitoring Results. August 4, 1994.

20. NCDENR. 1992. Correspondence to Asheville Dyeing and Finishing Regarding Closure/ Post-Closure Plans Former Underground Hazardous Waste Tank. May 8, 1992.

21. NCDENR. 1992. Correspondence to Asheville Dyeing and Finishing Regarding the Comprehensive Groundwater Monitoring Evaluation. May 29, 1992.

22. NCDENR. 1992. RCRA Inspection Report. October 29, 1992.

23. NCDENR. 1993. Correspondence to Asheville Dyeing and Finishing Regarding Groundwater Assessment. June 17, 1993.

24. NCDENR. 1994. Correspondence to Asheville Dyeing & Finishing Regarding Phase V Groundwater Assessment Report and Phase VI Groundwater Assessment Plan. April 26, 1994.

25. NCDENR. 1994. RCRA Inspection Report. November 15, 1994.

26. NCDENR. 2000. Draft Administrative Order on Consent. April 2000.

27. Pace, Inc. 1992. Chain-of-Custody Record Analytical Request. July 14, 1992.

28. U.S. EPA Region IV. 2000. Memorandum to North Enforcement and Compliance Section, Enforcement and Compliance Branch, Waste Management Division Regarding SESD-ES Comprehensive Groundwater Monitoring Evaluation (CME). July 26, 2000.

29. Weston, Inc. 1992. Groundwater Assessment Report. April 1992.

30. Anvil Knitwear, Inc. 2004. Email from Steve Pegg, Human Resources Manager, Anvil Knitwear. June 2004.

31. Metropolitan Sewerage District of Buncombe County. 2002. Permit to Discharge Industrial Waste for Significant Industrial User. January 1, 2002.
32. NC Dept. of Natural and Economic Resources, Div. of Env. Mngt. 1976. Report of Investigation. August 1976.
33. Winston Mills, Inc. 1976. Requested Cleanup of Beetree Creek. August 18, 1976.
34. U.S. EPA Region IV. Hazardous Waste Permit Information Form. Date Unknown
35. Mid-Atlantic Associates. 2003. Voluntary Groundwater Remediation Effectiveness Report. July 2003.
36. Anvil Knitwear, Inc. Spill Prevention Control and Countermeasure Plan. Date Unknown.
37. Westinghouse Environmental Services. 1988. Preliminary Hydrological Assessment. October 1988.
38. Aquaterra, Inc. 1992. Closure Certification. December 11, 1992.
39. NCDENR. 1988. Notice of Non-Compliance, Discharge to Stream Without Permit. June 2, 1988.
40. Pegg, Steve. 2004. Electronic correspondence to Jeremy Hogard regarding "Follow-up Questions." July 28, 2004.

FIGURE 1

Topographic Map for the Asheville Dyeing & Finishing/Anvil Knitwear facility

FIGURE 2

Asheville Dyeing & Finishing/Anvil Knitwear facility SWMU and AOC Map

ATTACHMENT 1

ADF
Solid Waste Management Unit (SWMU) and Areas of Concern (AOC) List

Asheville Dyeing and Finishing/ Anvil Knitwear.

Solid Waste Management Unit (SWMU) and Areas of Concern (AOC) List

SWMUs

40. Trash Receptacles
41. Air Collectors/Filters (throughout Knitting Area)
42. Used Knitting Oil Storage Area (two 55-gallon drums)
43. Secondary Containment for New Knitting Oil
44. Parts Washers (4)
45. Compressed Air Cleaning Box and Collection Bin
46. Secondary Containment for Tote Farm
47. Secondary Containment in Dye Mixing Room
48. Interior Floor Drains/Trench Drains
49. Former Waste PCE Tank Area
50. Sparging/SVE Remediation System (1997 & 2001)
51. Waste Water Collection/Treatment System
13. Eight-inch Drain
14. Old Dump Area
15. Roll-off Container (North side)
16. Former Drum Storage Area
17. Secondary Containment for Chemical Tanks
18. Secondary Containment for Fuel Oil Tanks
19. Roll-off Container (West side)
20. Roll-off with Compactor (West side)
21. Storm Water Drains
22. Used Oil Storage Area (Third Floor)
23. Storage Area along north property line

AOCs

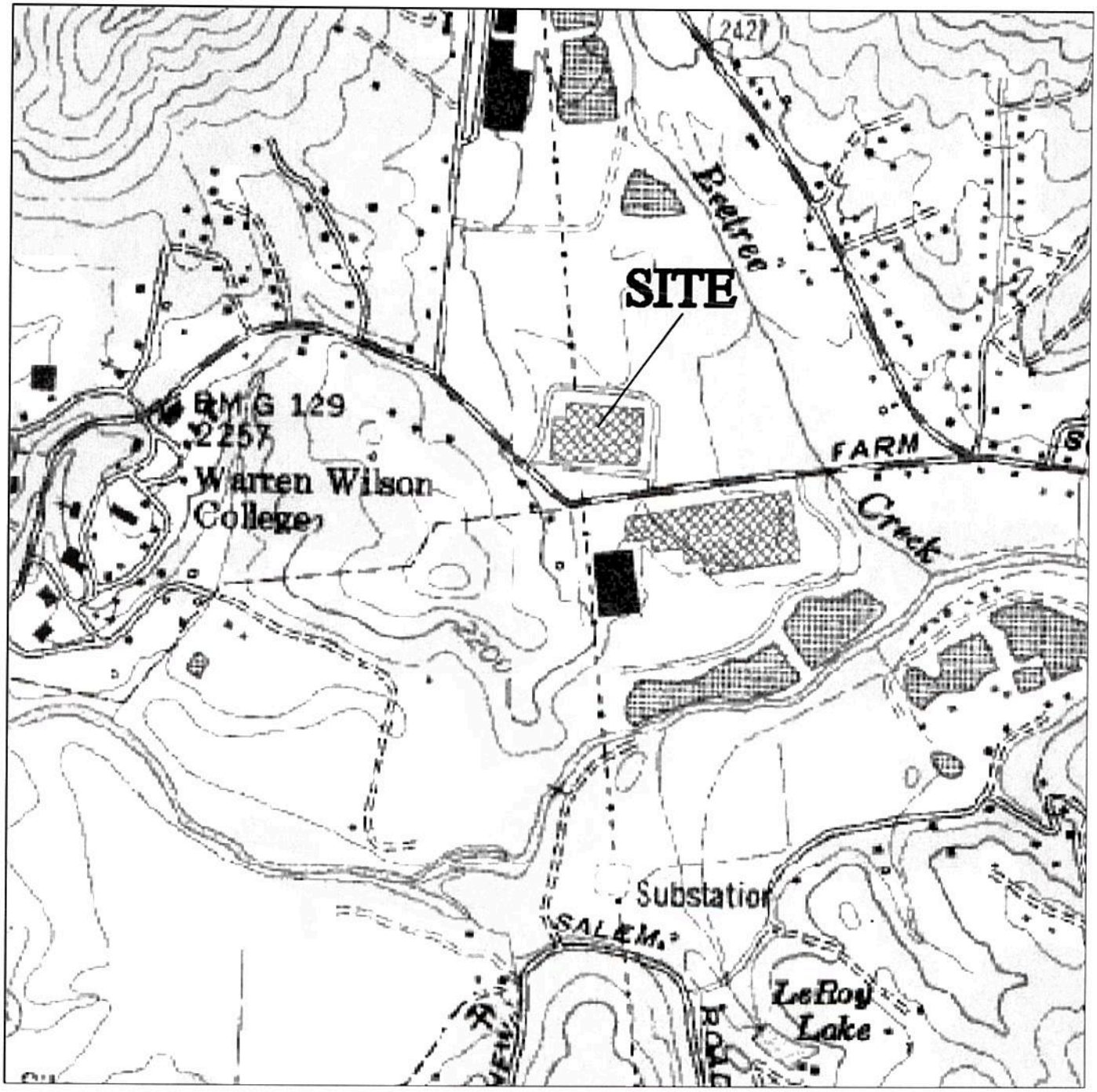
24. Former Disturbed Soil Area

ATTACHMENT 2

Photographic Log

ATTACHMENT 3

VSI Logbooks



RCRA FACILITY INVESTIGATION
ASHEVILLE DYEING & FINISHING/ANVIL KNITWEAR
ASHEVILLE, NORTH CAROLINA

Date: JUNE 28, 2004

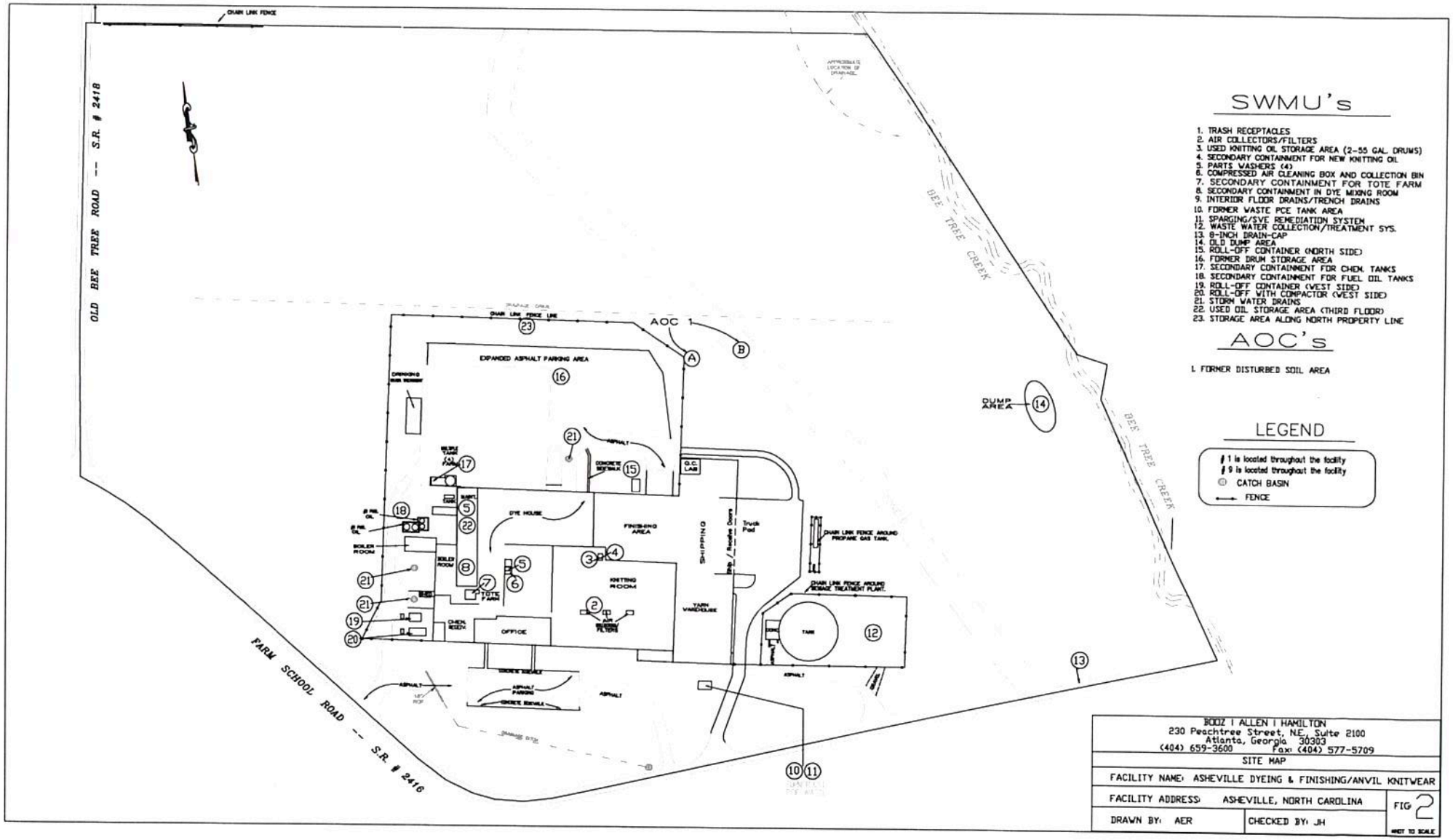
Drawn By: AER

FIG: 1

BOOZ|ALLEN|HAMILTON

230 Peachtree Street N.W. Suite 2100
Atlanta, Georgia 30303
(404) 659-3600 FAX (404) 577-5709

*NOT TO SCALE
(MAP BASED ON
1:25,000 SCALE)



BOOZ | ALLEN | HAMILTON
230 Peachtree Street, N.E., Suite 2100
Atlanta, Georgia 30303
(404) 659-3600 Fax: (404) 577-5709

SITE MAP

FACILITY NAME: ASHEVILLE DYEING & FINISHING/ANVIL KNITWEAR

FACILITY ADDRESS: ASHEVILLE, NORTH CAROLINA

DRAWN BY: AER | CHECKED BY: JH

FIG 2

NOT TO SCALE

"Rite in the Rain®"
ALL-WEATHER WRITING PAPER

FIELD

All-Weather Notebook
No. 351

6-2-04
Asheville Dyeing + Finishing /
Anvil Knitwear

4 5/8" x 7" - 48 Numbered Pages

"Rite in the Rain®"
ALL-WEATHER WRITING PAPER

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

ELIZABETH R. STEWART
Hydrogeologist
Hazardous Waste Section
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Project _____

CONTENTS

PAGE	REFERENCE	DATE

6-2-04

6-2-04

- Met John Johnston, Larry Staley + Elizabeth Stewart at 8:00. Across street from Anvil is Owen Manufacturing Co and new residential homes (Centex Construction)
- Met at the facility at 8:30 Met w/ Bob LaSouse, Kirk Pollard & Steve Pegg
- Had intro meeting (8:40) John Johnston initiated Intro Meeting.
- Steve Pegg Dir. of Human Resources
- Kirk Pollard consulted site since 1990.
- Public forum is for ADF to obtain post closure permit.

6-2-04

6-2-04

(approx. time) 1970 - 1977

- Dry cleaning process
  Winston Mills operated
  Dry cleaning to clean
  "degreasing" fabric to
  rid of oils. It took
  place inside of facility
  2 USTs. 1 waste ~~oil~~
  fuel & 1 raw
  product. These tanks
  were outside of facility
  building.

- Size of property is
  54 acres it was
  acquired sq from Albemarle
  Carolina.
  Northern Carolina — Wamsutta
  — Winston Mills (ADF)
  — will be provided info by
  end of day

6-2-04

6-2-04

ss Info.: Knit
e + finish Cotton
ric ("Active wear")
n is brought in +
then knitted into
oll of fabric. Fabric
dyed + then
ric is "finished" pressed +
Approx. 1,000,000 lbs)
fabric is produced)
pped to associate

pants to make active
ear. The finishing
ocess is

575 employees

DF dyed + finished
ric only. They
did not knit.
bought new equipment
company
rid of ADF equipment.

6.2-04

6.2-04

- Finishing process

9:20 Started walk thru Inside

- Yarn Receiving: comes in on a plastic tot w/ 10 cones of yarn. (Gray yarn) from Supplier Cotton (virgin).

(Met w/ Sean Fuentes mgr. over receiving & knitting

pictures: 1 = receiving dock for yarn.

2 = gray yarn w/ dog quot /

3 = cotton yarn

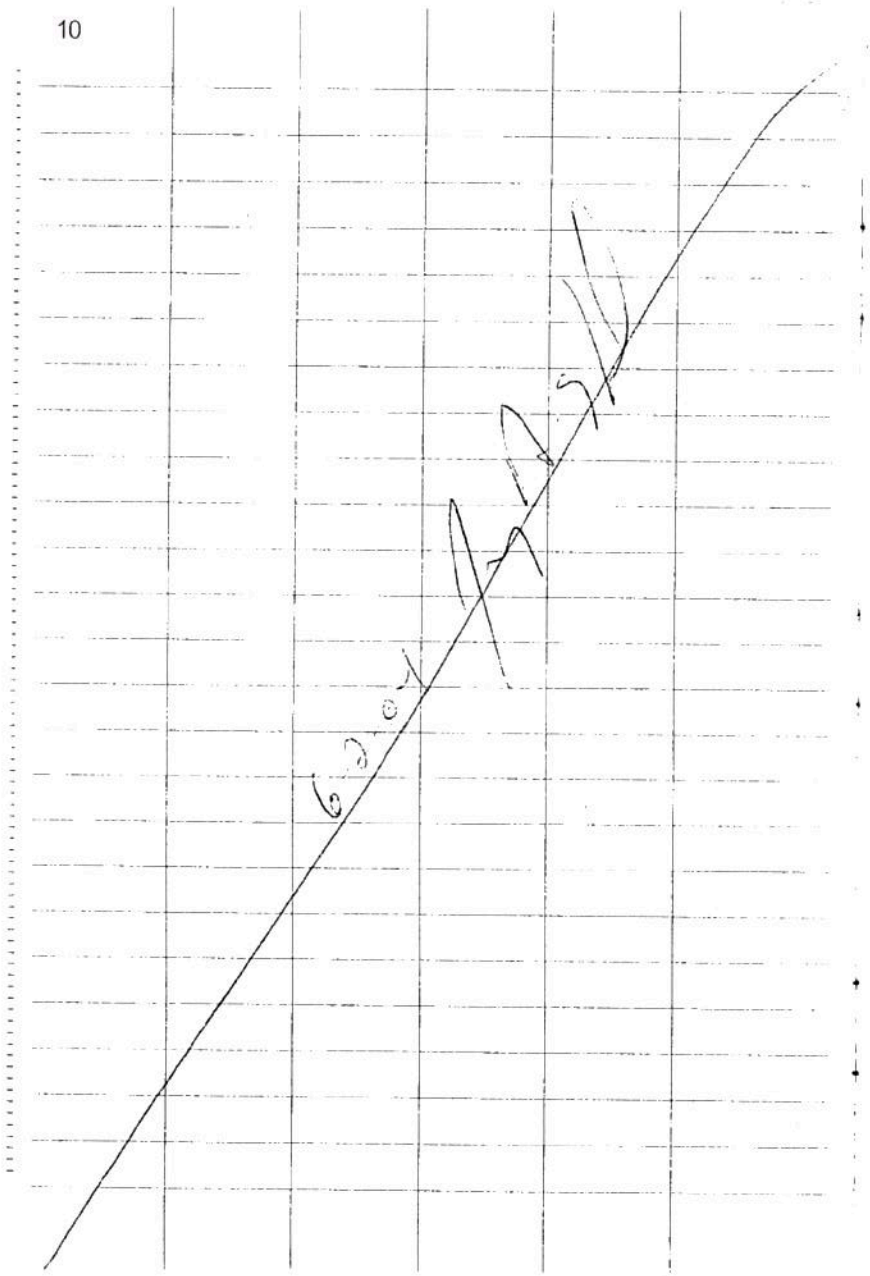
Gray cotton contains 10% Dacron or polyester + 90% cotton.

picture 4 = plastic small skin roll off for shrink wrap it

plastic ties that are disposed of

picture 5 = small green trash can for floor sweepings.

Air bag filters for lint



6-2-01

Picture 6 = Air collector for residual lint & cotton

Picture 7 = Air bag for residual lint & cotton.

~~Picture~~

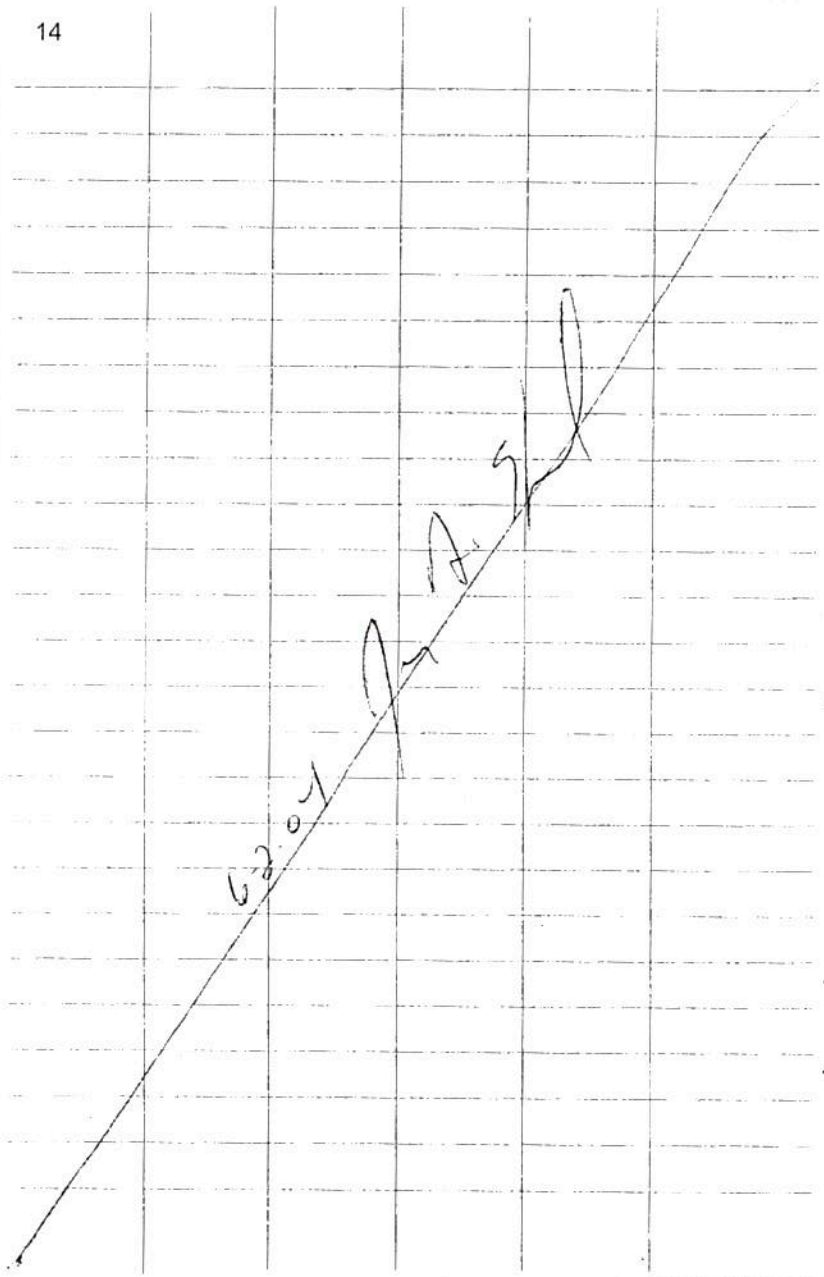
- "knitting room" is where pictures 5, 6, & 7 are taken.
- "knitting oil" is a lubricant applied to knitting machines at ~~the~~ mist spray w/ approx. 50 drops emitted.
- ~~waste~~ USED knitting oil is drained from machines into a small bottle & put into USED oil container & oil is picked up Holstein Oil Comp. approx. 2-3 55 gallon drums.

"Waste oil" is incorrect verbiage.
picture = ⅝ of USED knitting oil unit.

6-2-04 Amy A Sill

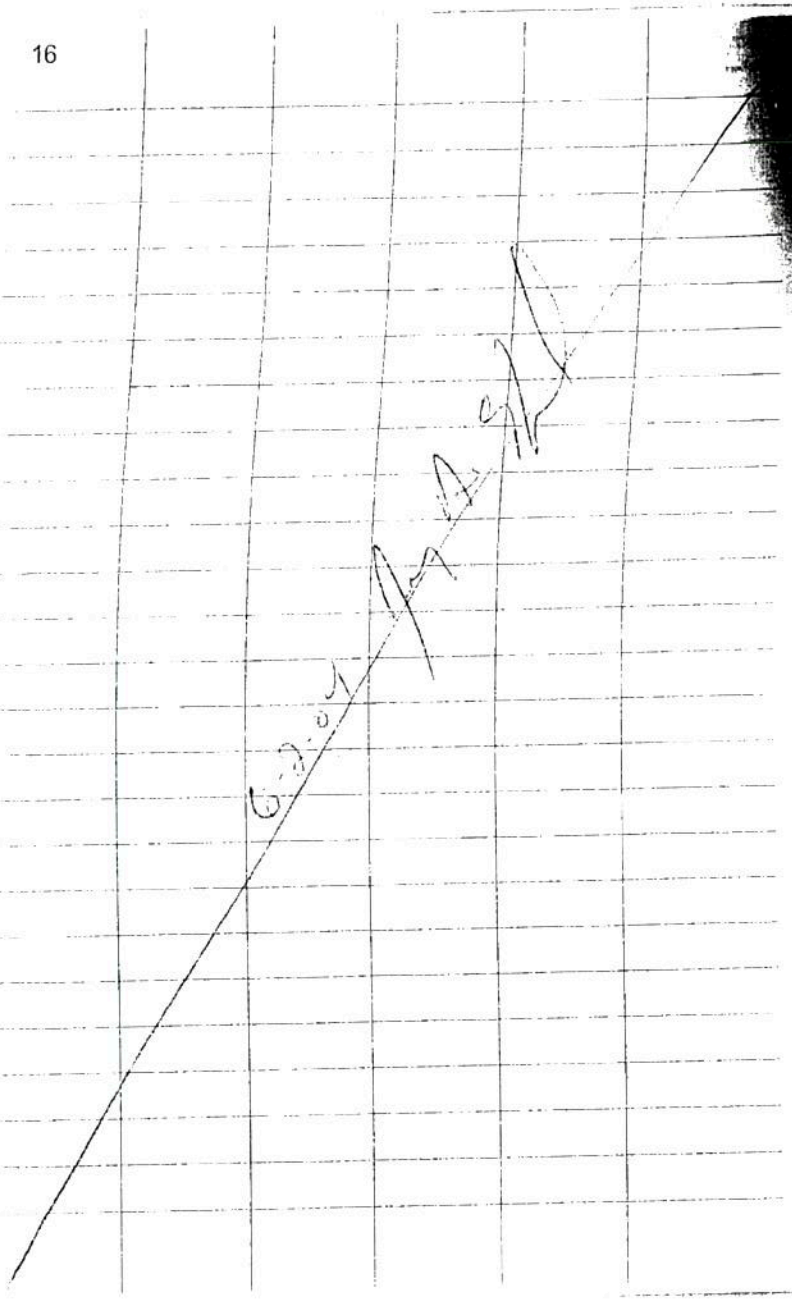
Picture 9 of inside USED Oil
Unit. 2-55 gallon Drums
inside secondary containment.
(provide picture to NCDENR)

2 "Knitting Parts Room" =
contains two parts
washers + use "premium
solvent" w/ high flash point.
Safety Kleen picks up solvent
after use. Approx. every 3 mos.
SK comes to get solvent.
One large contains Approx.
55 gals. + small parts
washer. under sink and BBtch
one small trash can under
parts washer adj. to
large parts washer.
Picture 10 = Small Parts washer
Picture 11 = Large Parts washer
picture 12 = parts washer w/
trash can underneath for lint
+ cotton residual



Met w/ Matt Gallaway who is over Dye Receiving Area = Dyes
all "non-hazardous" come in on
55 gallon & 35-40 gallon Drums
All dry
From knitting rolls come
to dye machines. Dyes
held in bulk form &
pumped to dye machines.
All empty Drums go back to
Vendor. Totes contain
detergents & surfactants
& mild peroxide enzyme
To bleach clean fabric.
Fabric is then dyed
& then dried again w/
mild surfactant.
Tote Farm has standing
containment w/ drain inflow.
Drain goes to outside
cement pad prior to treatment.
Picture 13 = Dye Receiving Dock.
Picture 14 = Tote Farm
Picture 15 = Drains in
Secondary containment of Tote
Farm.

6-2-01 MAS



6-2-04

Dye weighing room - Next step in process. Dye is mixed according to client specifications. All drums after being emptied go back to vendor. Adrum is in floor & goes to outside concrete pad.

Picture 16 - Dye weighing room

Dye Mixing Room - Here where dyes are mixed & piped to machines where fabric is dyed

Picture 17 - Dye mixing room

All drums & secondary containment bags are piped to concrete pad prior to treatment.

Picture 18 - Secondary containment for dyes & ~~chemicals~~.

6-2-04

Dye House = knitted material is unrolled in an area known as Batching area & taken to Dyeing area. Roll Fabric is then placed on roll around inside Dye Machine. Flour drums inside Dye House are piped to canteen roof. Tumble room.

Picture 9 = Dye Machine. Several trash receptacles inside Dye House.

Mike Barnes is our Finishing Man.

From Dye machine the fabric has water extracted & a softener is used to soften fabric & shrink fabric to desired width at the Finishing area

6-2-04

6-2-04

Softener is a polyethylene chemical.

- The extracted liquid is piped to outside concrete pool by gravity

Picture 20 = finishing floor where water is extracted.

From water extraction process the fabric goes to multi-pass dryers. The fabric is dried by use of steam & natural gas.

Picture 21 = a multi-pass dryer

- Compacting area =

this area is where fabric is shrunken using heat & steam.

Picture 22 = Compacting equipment

From the compacting area the 45lb rolls are produced.

6.2.04 Jm A.G.H

6.2.04 Jm A.G.H

Fabric is QC'd to insure product is satisfactory if not then it goes back to dye house to rework.

1,000,000 lbs of fabric a week.

Picture 23 = final product

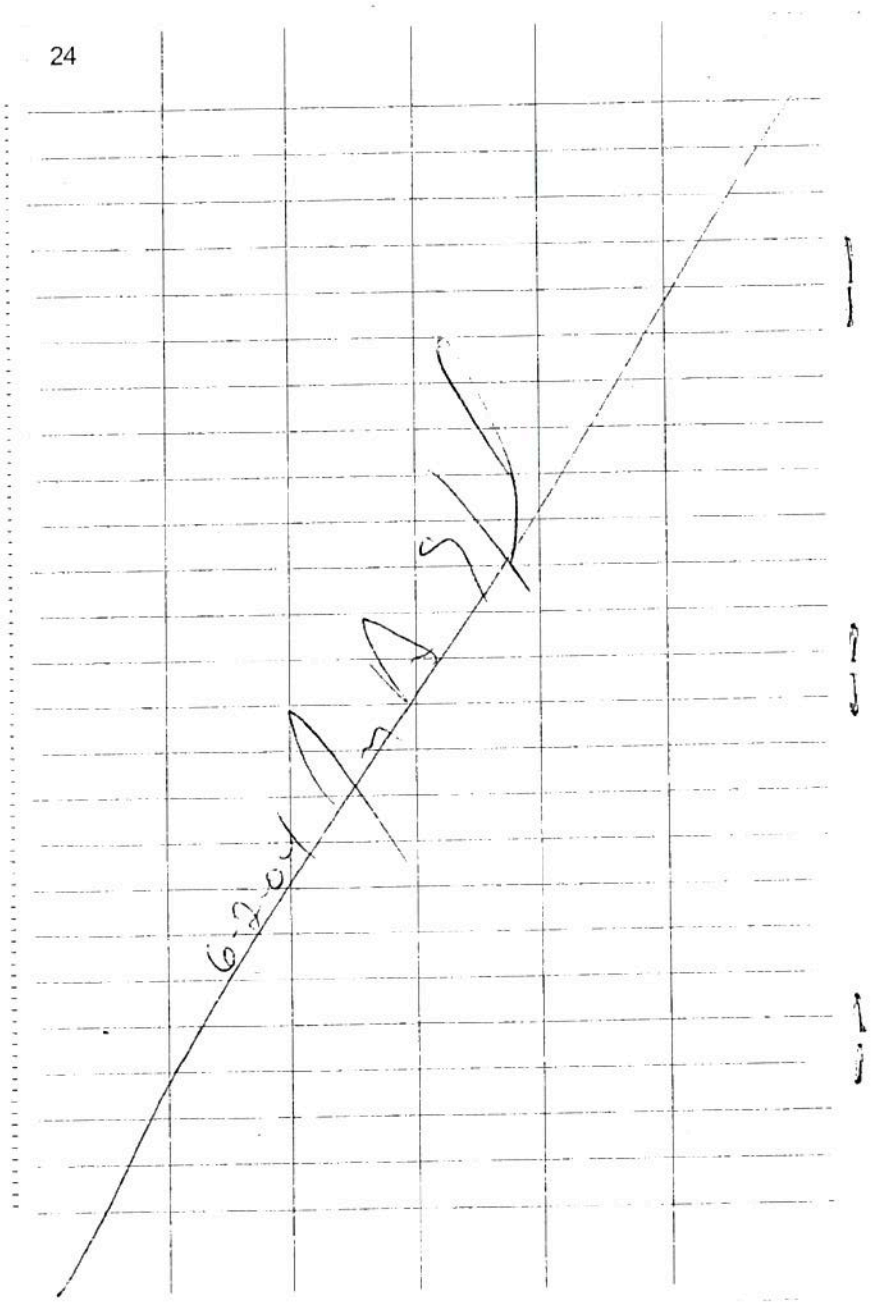
All sewing of material is shipped to Honduras + El Salvador.

Outside

(2 000 gallon)

Waste pvc tank = was held in south of building. Built in 1997. Air Sparge + vac system was built.

Picture 24 & 25 of waste pvc tank.



6-2-04 JmA SL

Product tank for Pvc is
west of waste pvc tank
South of Sand rig.
Picture 26 = Direction to
ground for new product tank

Picture 27 = South adj prop.
from Soil facility.

process wastewater
pond = Coors from
grit chamber (to landfill(via)
waste
containing
from grit to Aeration
to ph control &
discharge to Metropolitan
Sewerage District.
Rarely ever treat for
ph. usually 8-10 ph.
Discharge approx. 1,000,000 gal
a day. (1,000,000 tank.

Smith Midberry 1990's

6-7-21

6-24-21

picture 28 = Switchback.

No solids are in ~~the~~ pond.

picture 29 = Aeration Pond

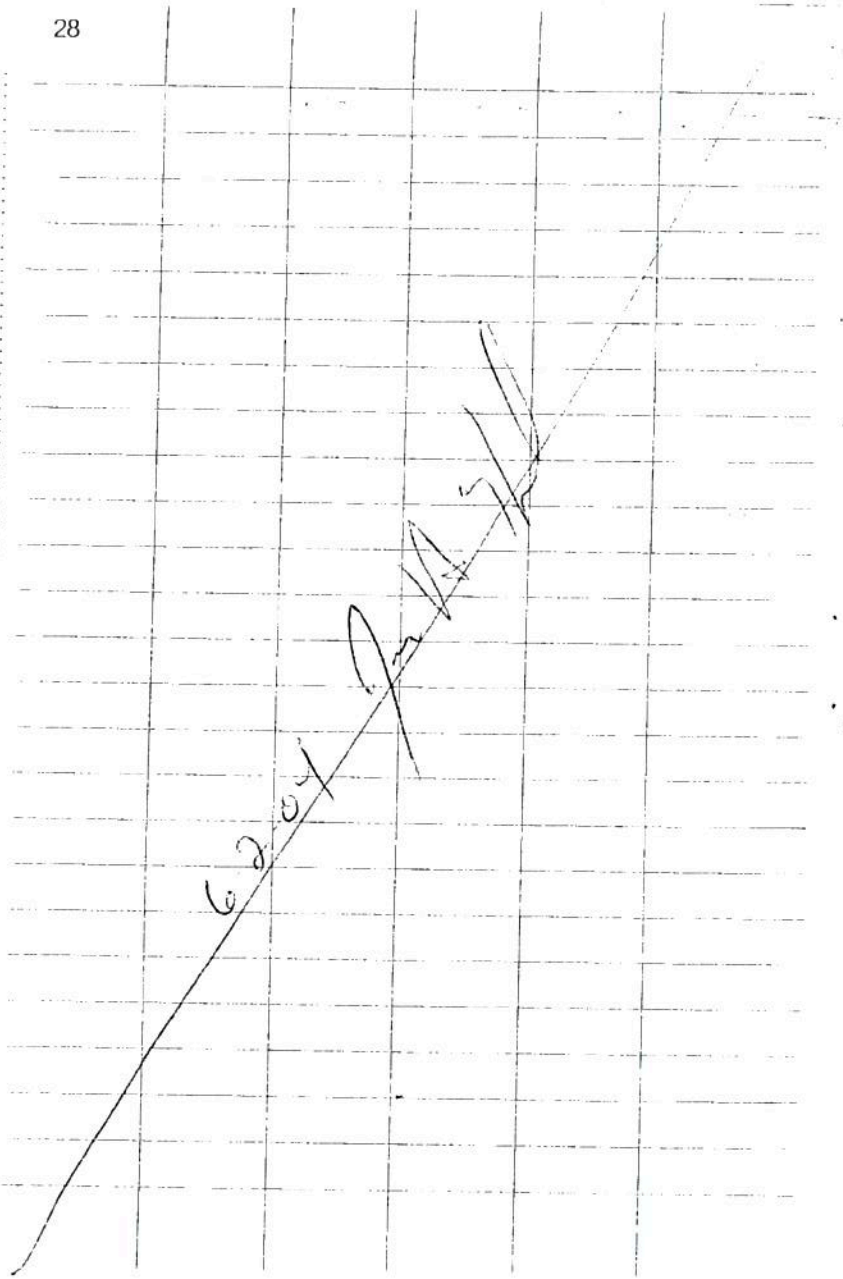
picture 30 = weir + final discharge to POTW

A wetland is located east of facility approx 100-200 yards from facility. Size unknown

picture 31 = Bethtree Creek east of facility

The storm drain has been capped + tied into MSDs pipes. It acts as low catch from French Drain

picture 32 = Tie in for storm Drain



6.2.01 Jm R SL

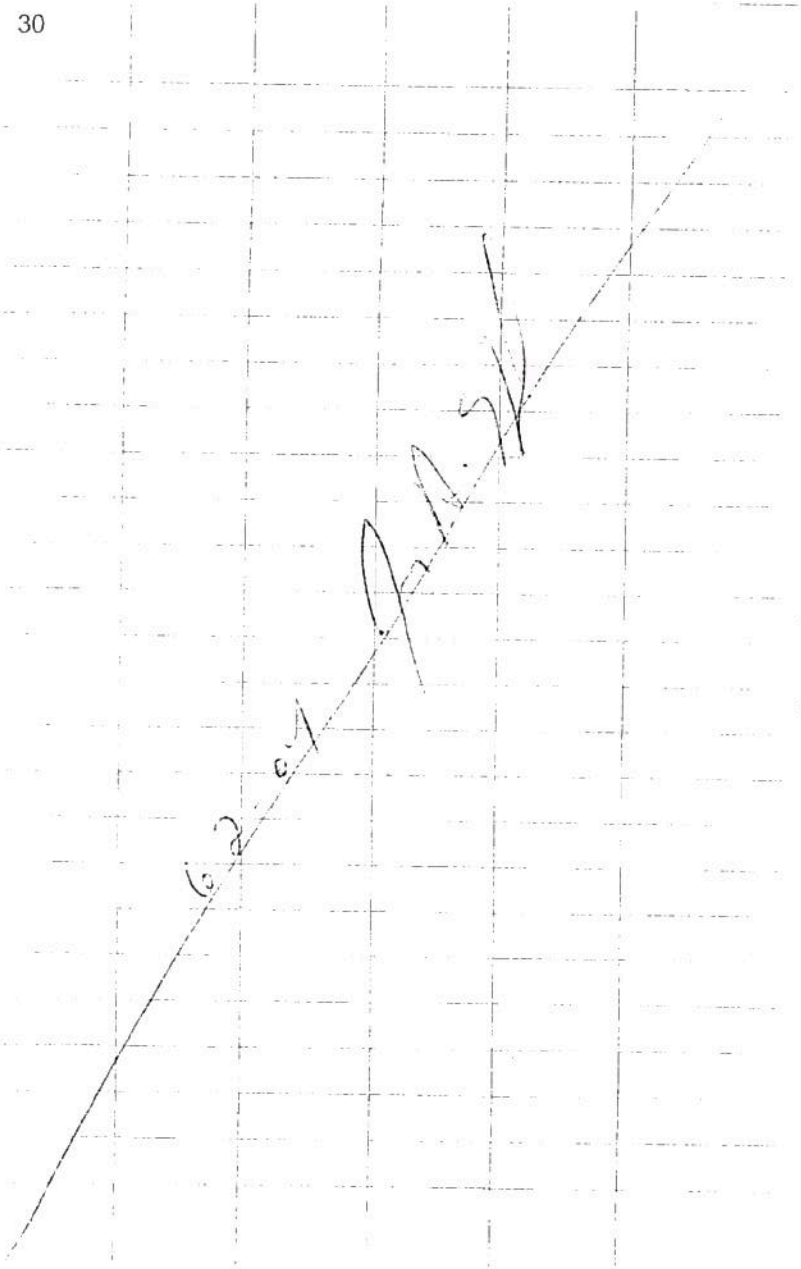
The "Old Road" was used to gain access to roads historically [illegible] I was told in 1992 or 1993.

Tarp with covers plastic Stream Stretch is located North of property.

Pictures 33-35 are of old dump.

drums / C+D material / ductile material, thick metal pieces. Bee Tree Creek is approx. 100 feet east of dump

Will be back at 12:40



6-2-04 Aug A. Hall

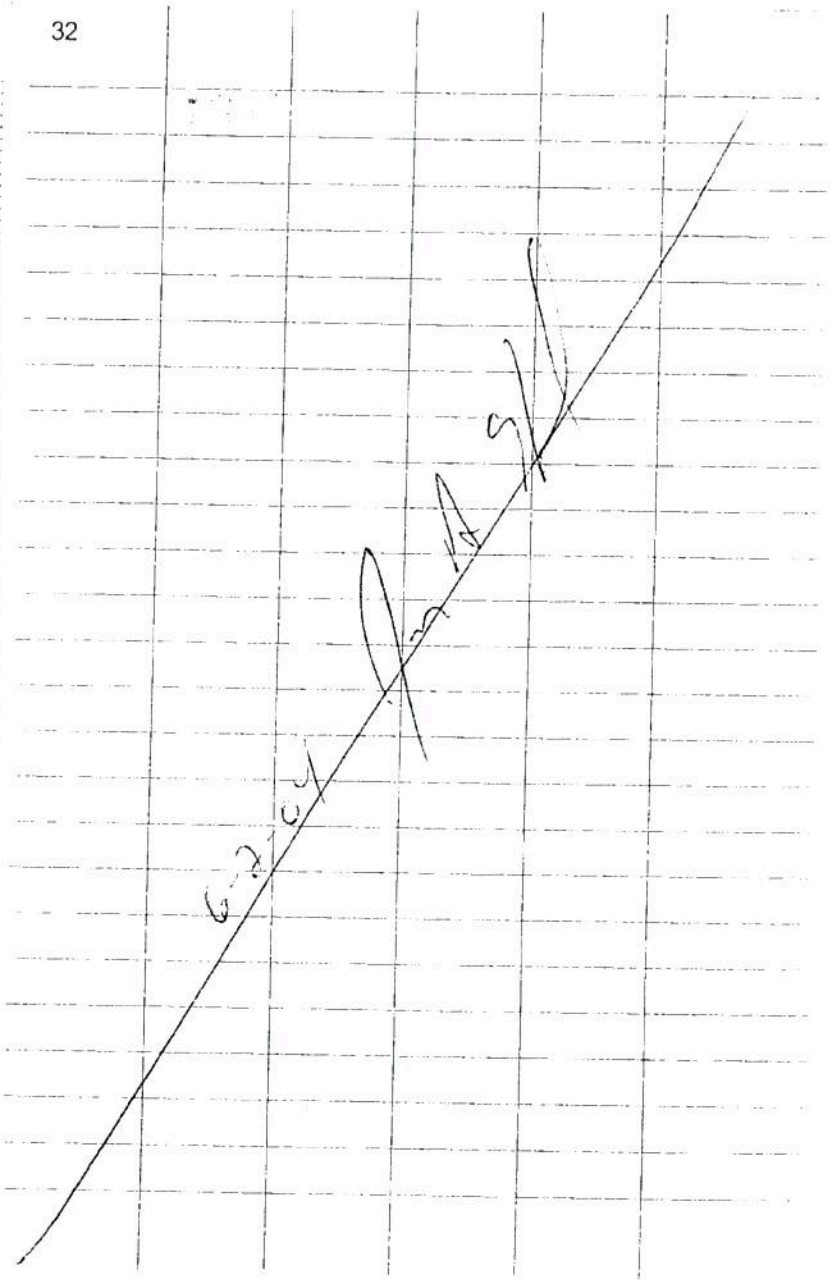
Return from Lunch at 1:40.

p.c 39 = Roll off Container next of Truck docks that contains Construction debris (metal) + plastic 55 gallon Drums.

E p.c 40 = East direction from facility

This container has been on site for @ 18 mos (or others like) for facility construction units.

p.c 41 = Site of old (Facing East) Drum (40) area. Drums entered soil cuttings, presumably saw. This area is now covered in asphalt.

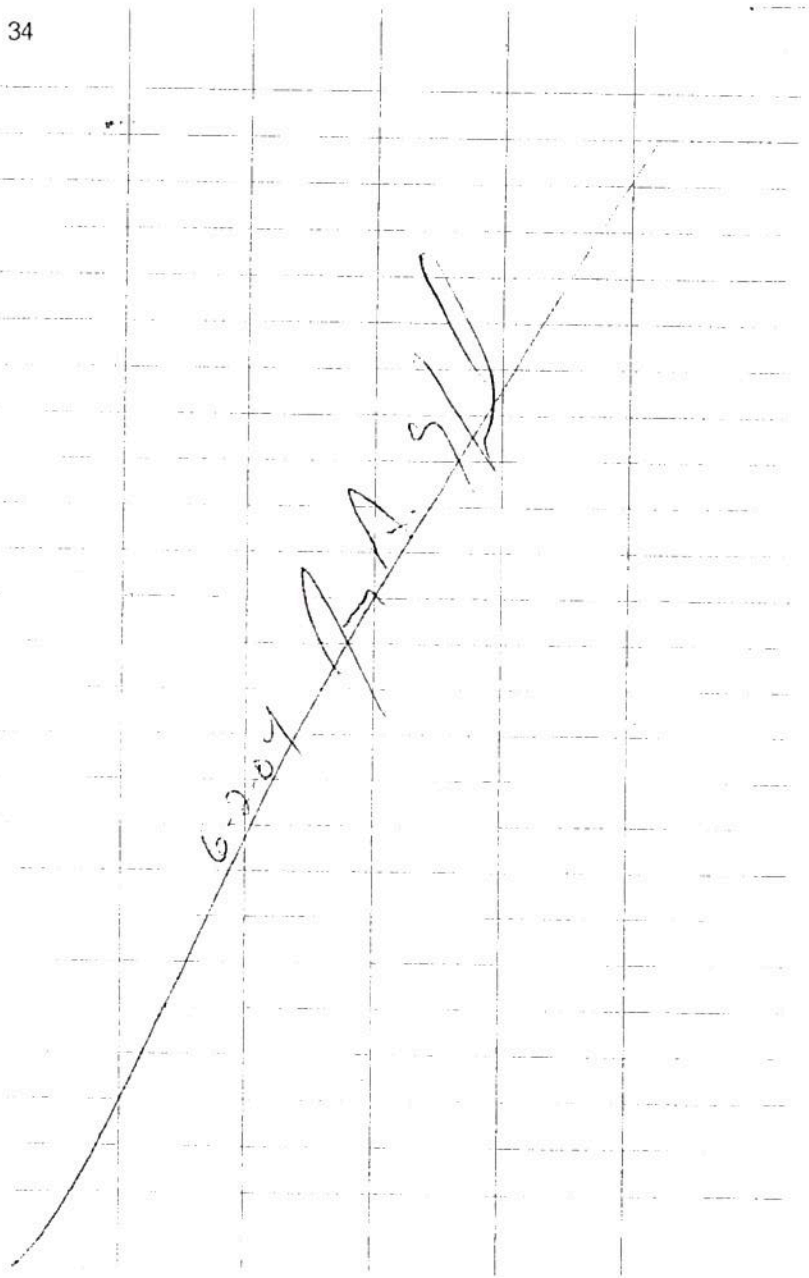


Pic 42 = Temp. Storage of plastic waste bulk's & tanks to be recycled. Located along the fence line two feet further East of old Drum Storage (40) area.

Pic 43 = Tank farm w/ Hydrogen Peroxide (35%) (blue tank), Acetic Acid (56%) (white tank) 2 tanks salt brine (brown tanks) of (one large and small) located at NE corner of facility building

Pic 44 = Picture North from facility

Pic 45 = North location contains 1 20,000 gallon tanks containing H2O & H2 fuel oil. Has secondary containment



6-2-04 Jim Arnold

Pic 46 = Roll off Container w/ pallets + Municipal waste.

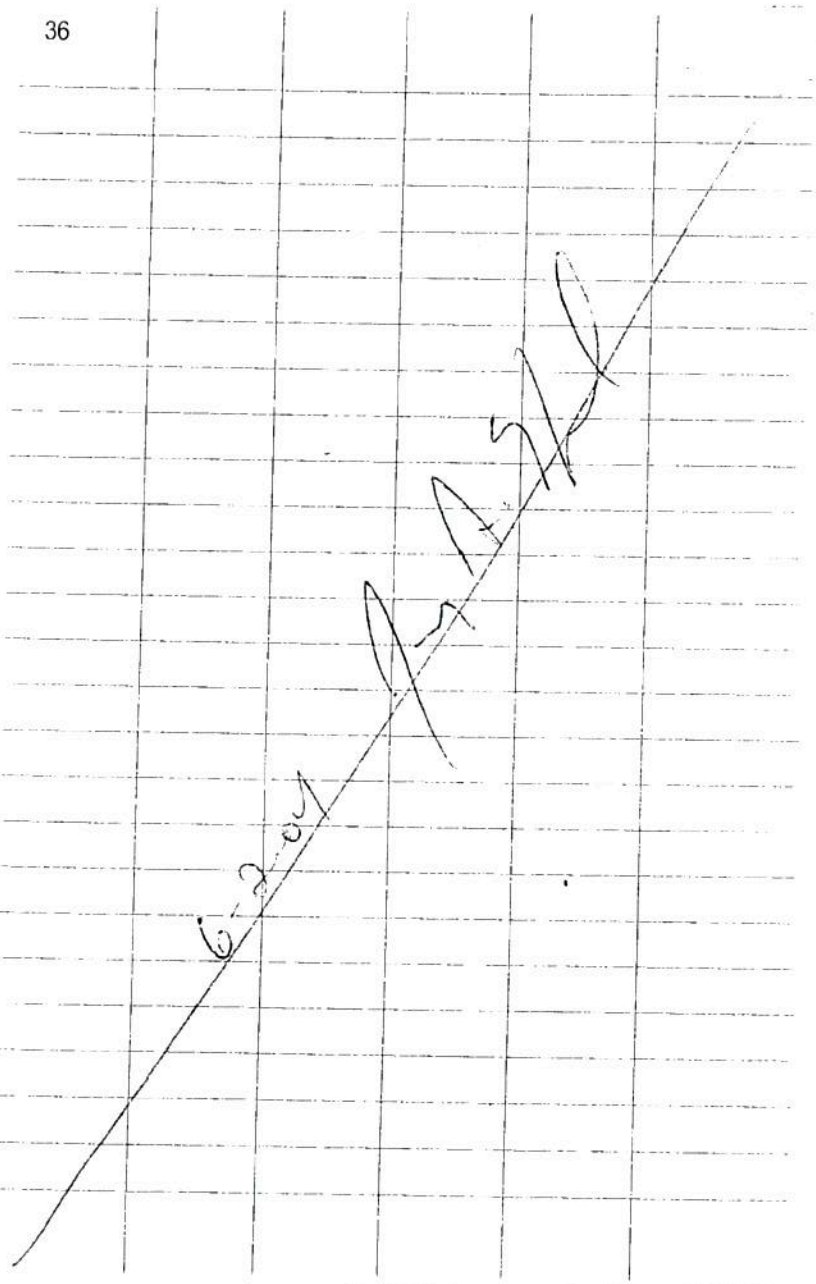
Pic 47 = Compactor for lint + other residual floor sweepings, etc

Both are located N. of facility

All Storm drains on property go to Storm drain sewage + then Backtracks at the River

Boiler room contains floor drains that are gravity fed to county WW prd.

1200 Solvay Boiler / 6000 KHW + KHW Heater Boilers located on NW corner of facility.



6-20-01

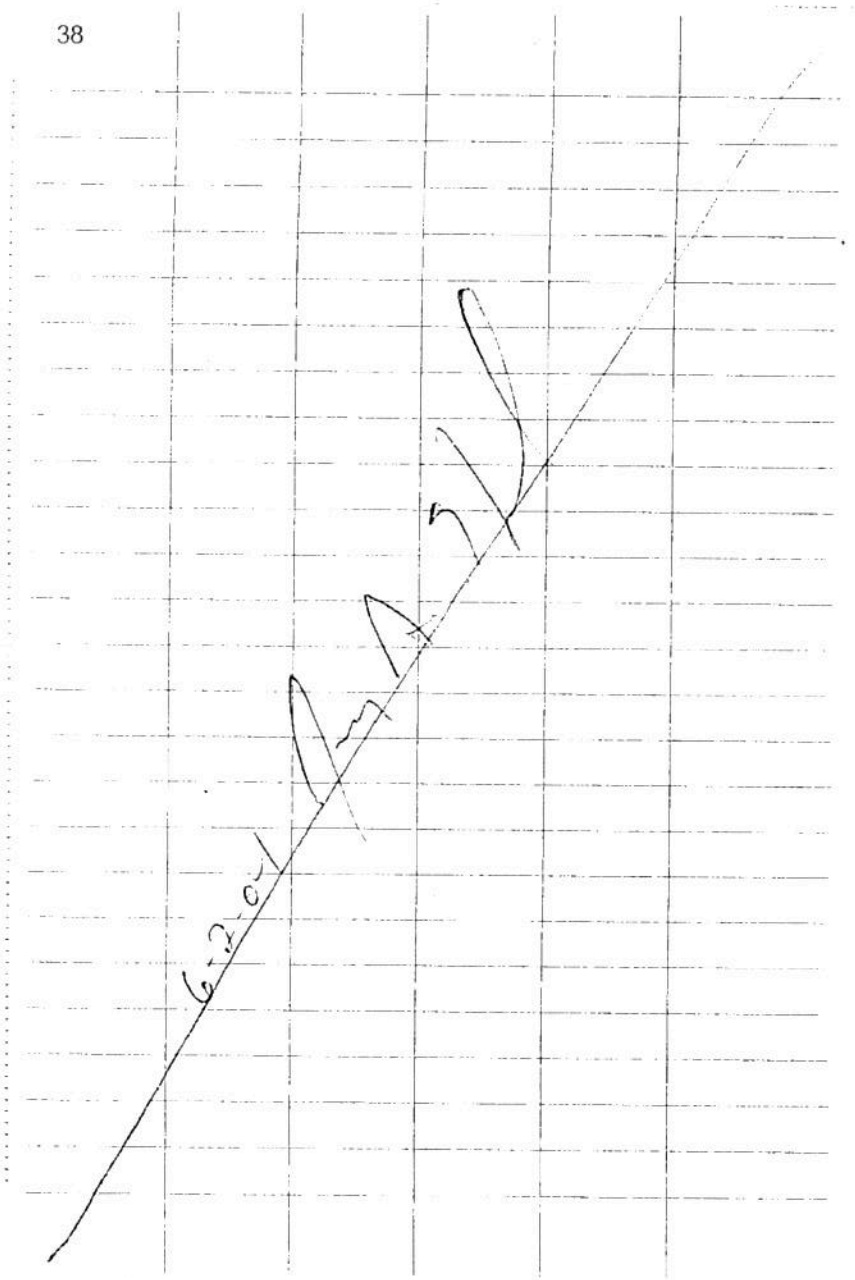
Picture 48 - Parts washer inside maintenance shop on N wall

Picture 49 - Parts washer inside Maintainance shop on South

No circuit Flourescent lights at facility to be disposed of

Pic 50 of 51 USED (Third Floor) Oil Storage that contains hydraulic oil, gear oils, & some EP 2 & # 6 fuel oil. 2-55 gallon drums w/ secondary containment.

3:05 started close-out meeting.



6-2-01 /— A. Shl

Only Rags are stored
Small & sold back to
Vendor. These rags are
not currently on site
more of an incident response
activity.

property purchase dates

A N.C. still land
in June 1971 to M.
Lowenstein & Sons Inc.
(potentially Wansutta)
March 1976 Winston Mills
purchased & 1987 Basil
purchased property

prior to this site was
reportedly field & undeveloped

Pic 52 = West from facility
Pic 53 = Front of facility
Pic 54 = ↑ Same ↑

Photo Number: 1
Direction: Facing north
Description: Front of Facility

Photographer: Jeremy Hogard
Date: 6/2/2004

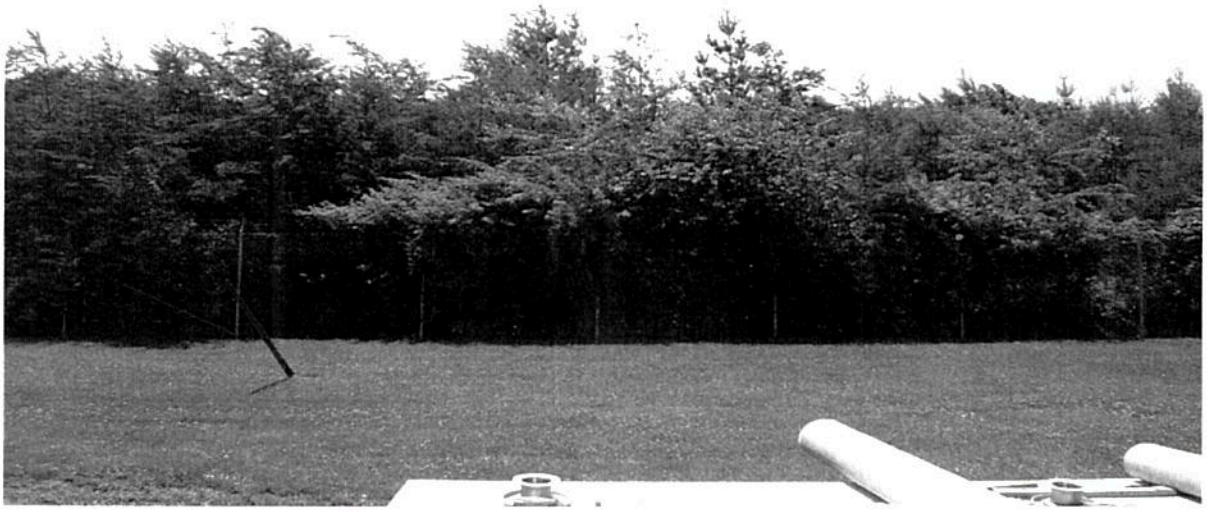


Photo Number: 2
Direction: Facing east
Description: Adjacent property east of facility

Photographer: Jeremy Hogard
Date: 6/2/2004

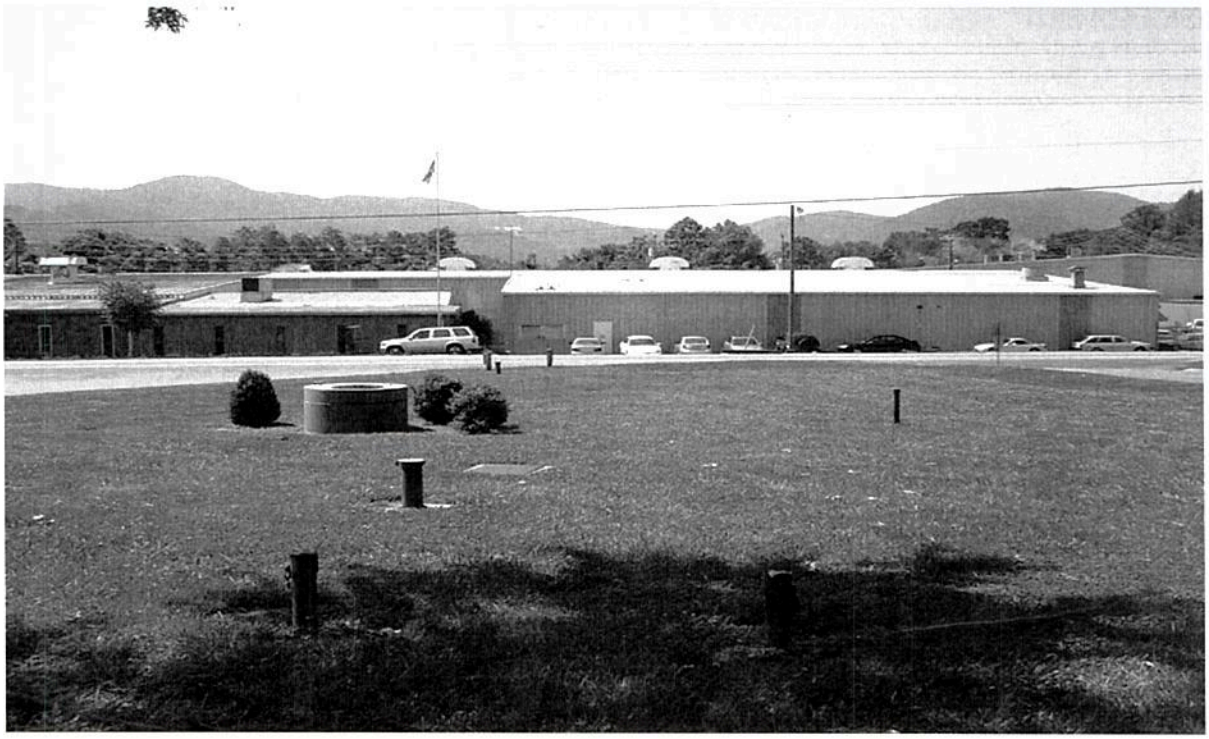


Photo Number: 3
Direction: Facing southeast
Description: Adjacent property south of facility

Photographer: Jeremy Hogard
Date: 6/2/2004

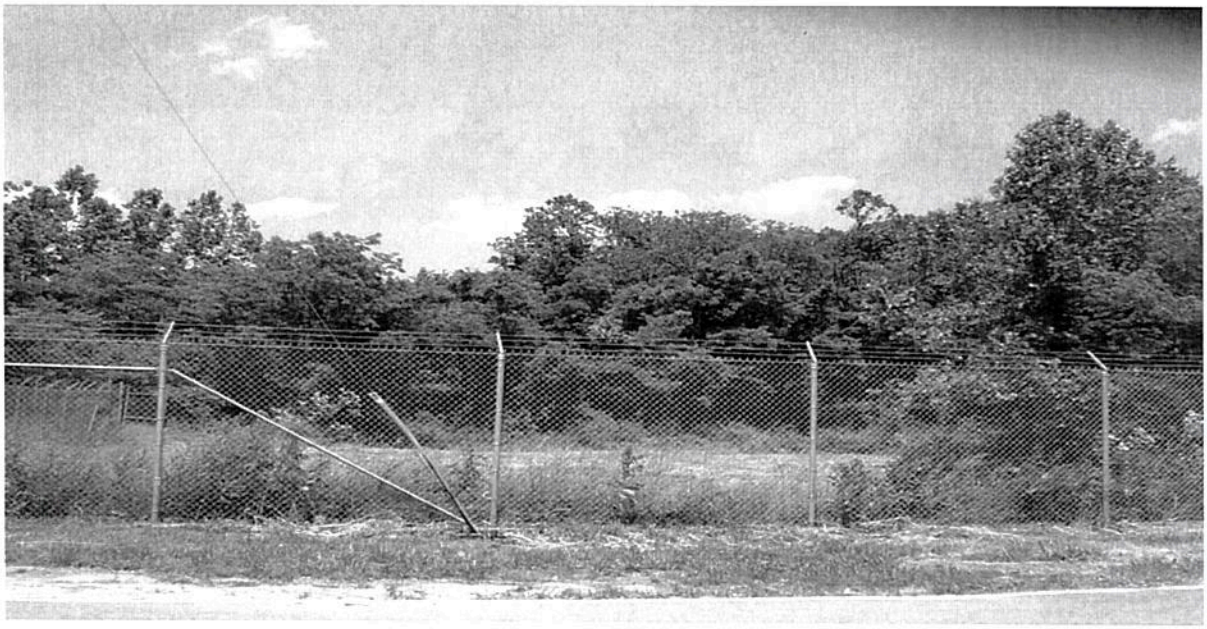


Photo Number: 4
Direction: Facing west
Description: Adjacent property west of facility

Photographer: Jeremy Hogard
Date: 6/2/2004

Photo Number: 5
Direction: Facing south
Description: Adjacent property south of facility

Photographer: Jeremy Hogard
Date: 6/2/2004

Photo Number: 6
Direction: Facing east
Description: Yarn receiving dock

hotographer: Jeremy Hogard
Date: 6/2/2004

Photo Number: 7
Direction: Facing northwest
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Grey yarn with Daycron located inside of the Yarn Receiving area

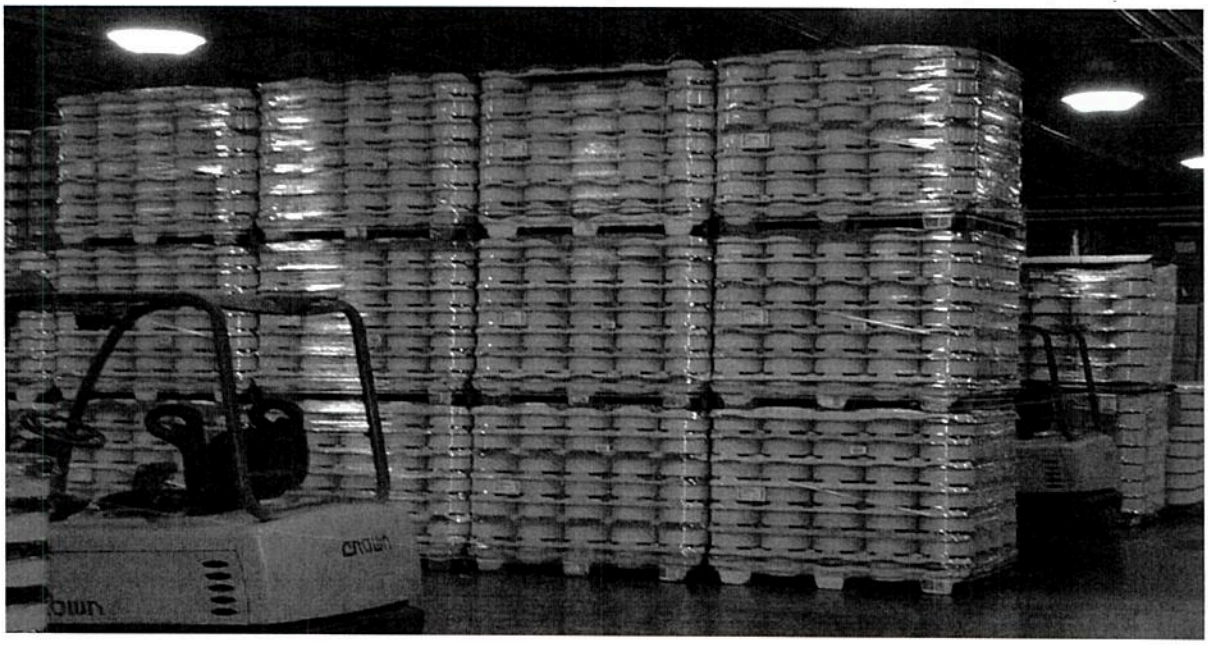


Photo Number: 8
Direction: Facing southeast
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Virgin cotton yarn located inside of the Yarn Receiving area

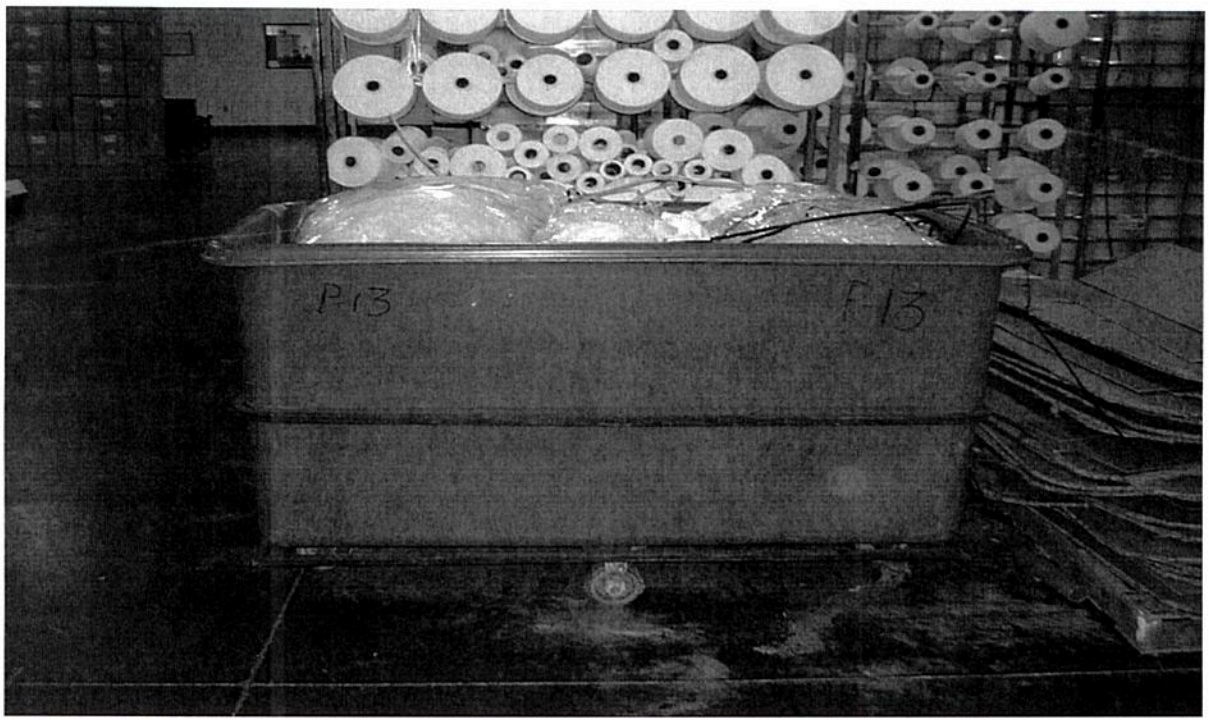


Photo Number: 9
Direction: Facing east
Description: Large blue trash receptacle located in the Yarn Receiving area.(SWMU 1)

Photographer: Jeremy Hogard
Date: 6/2/2004

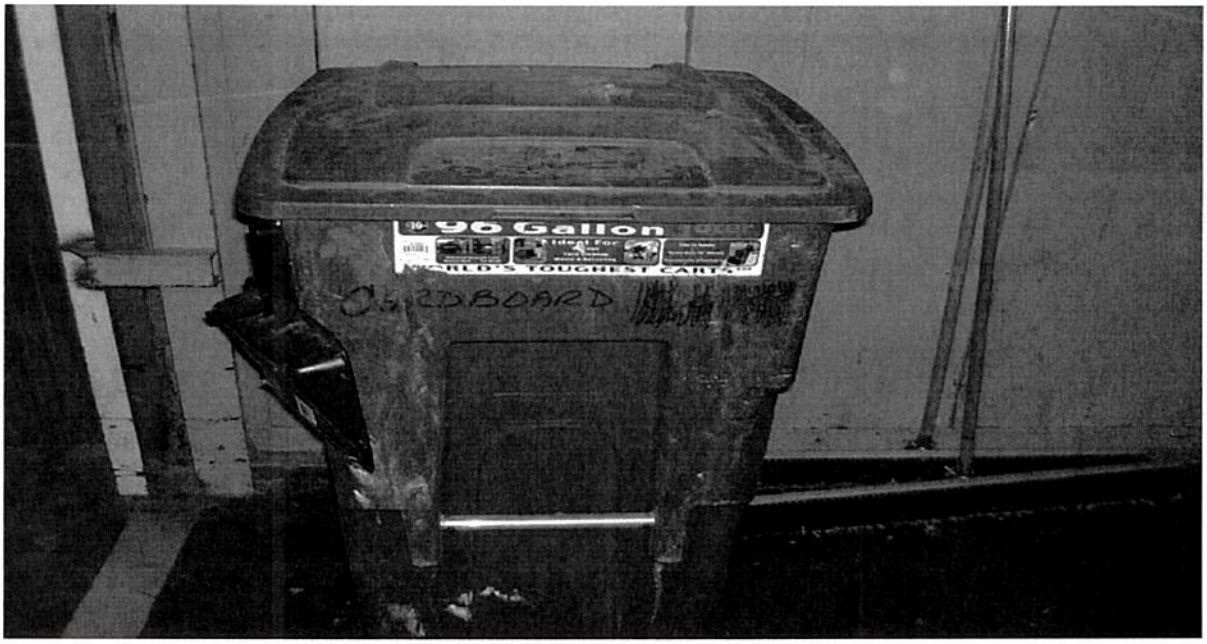


Photo Number: 10
Direction: Facing north
Description: 55 gallon trash receptacle (SWMU 1)

Photographer: Jeremy Hogard
Date: 6/2/2004

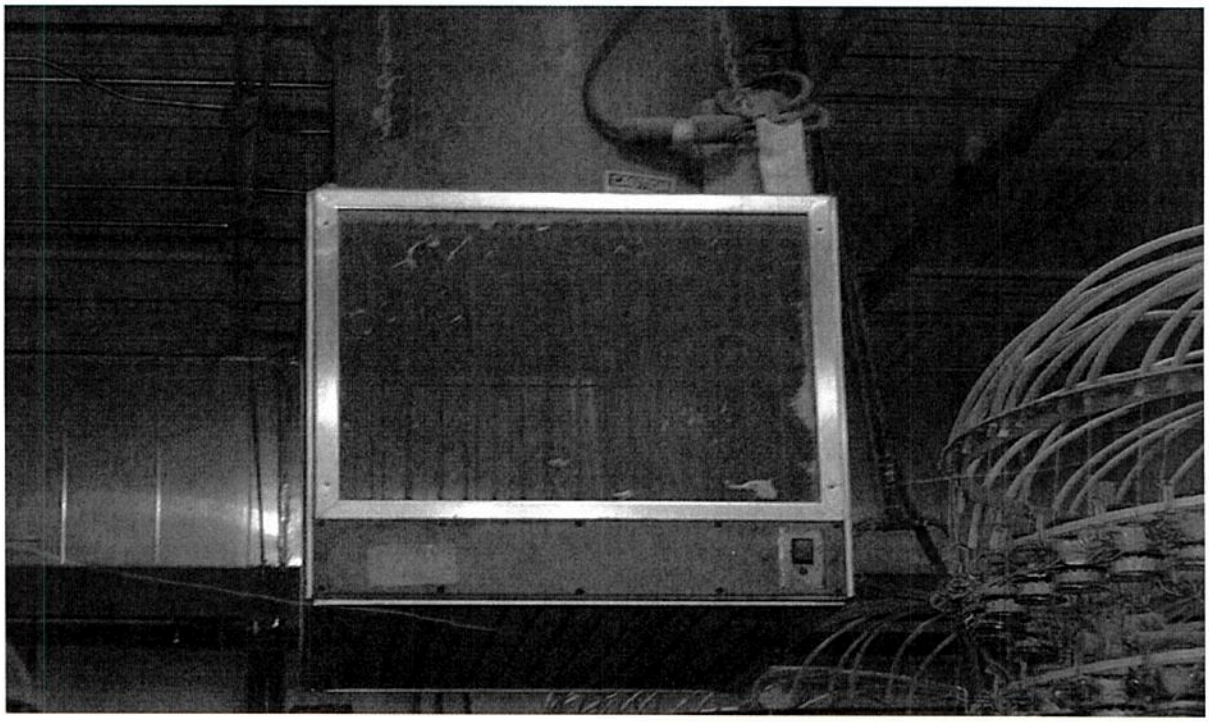


Photo Number: 11
Direction: Facing northt
Description: Air collector in Knitting Room (SWMU 2)

Photographer: Jeremy Hogard
Date: 6/2/2004

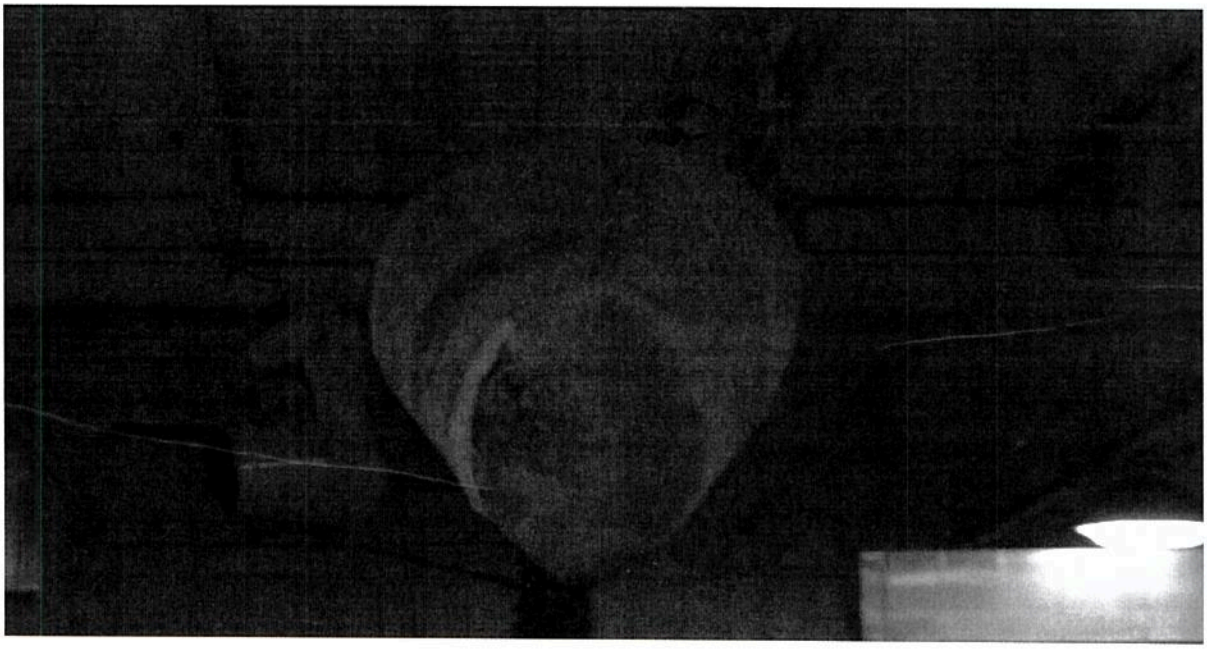


Photo Number: 12
Direction: Facing south
Description: Airbag in Knitting Room (SWMU 2)

Photographer: Jeremy Hogard
Date: 6/2/2004

Photo Number: 13
Direction: Facing east
Description: Used Knitting Oil Secondary Containment (SWMU 4)

Photographer: Jeremy Hogard
Date: 6/2/2004

Photo Number: 14
Direction: Facing east
Description: Two 55 gallon drums stored inside Used Knitting Oil Secondary Unit (SWMU 3)

Photographer: Jeremy Hogard
Date: 6/2/2004

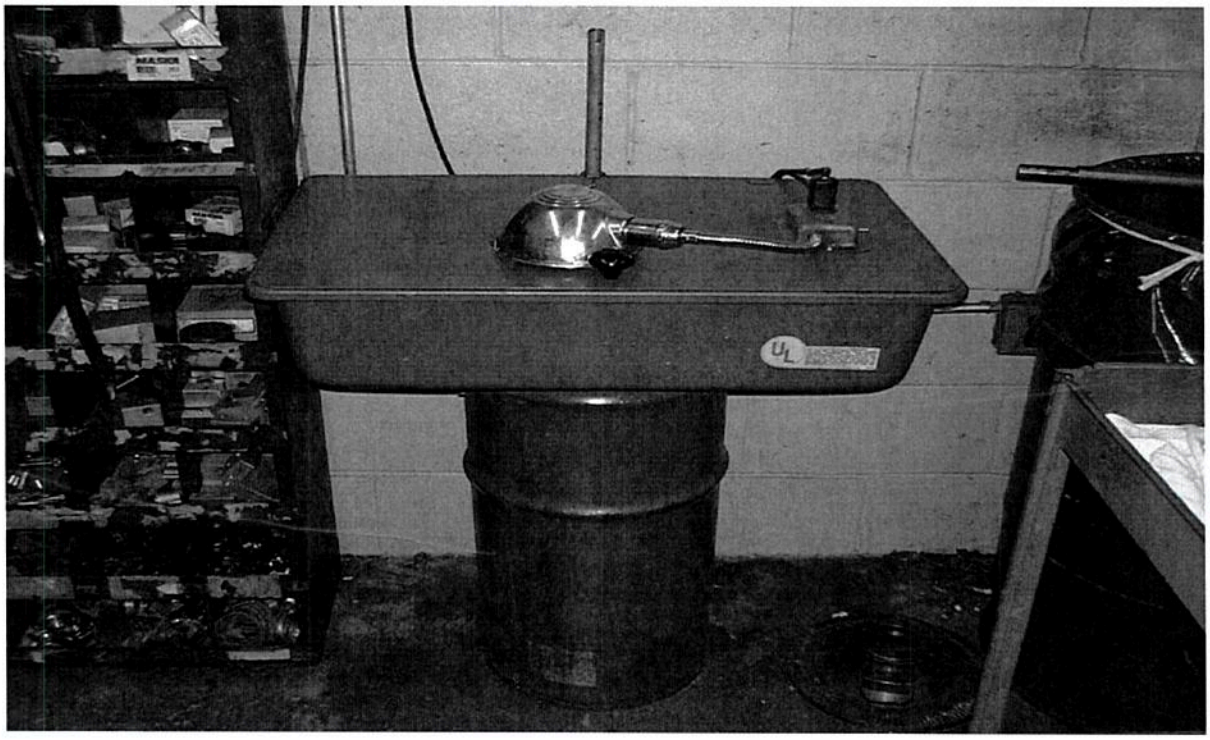


Photo Number: 15
Direction: Facing north
Description: Small parts washer inside Knitting Parts Room (SWMU 5)
Photographer: Jeremy Hogard
Date: 6/2/200

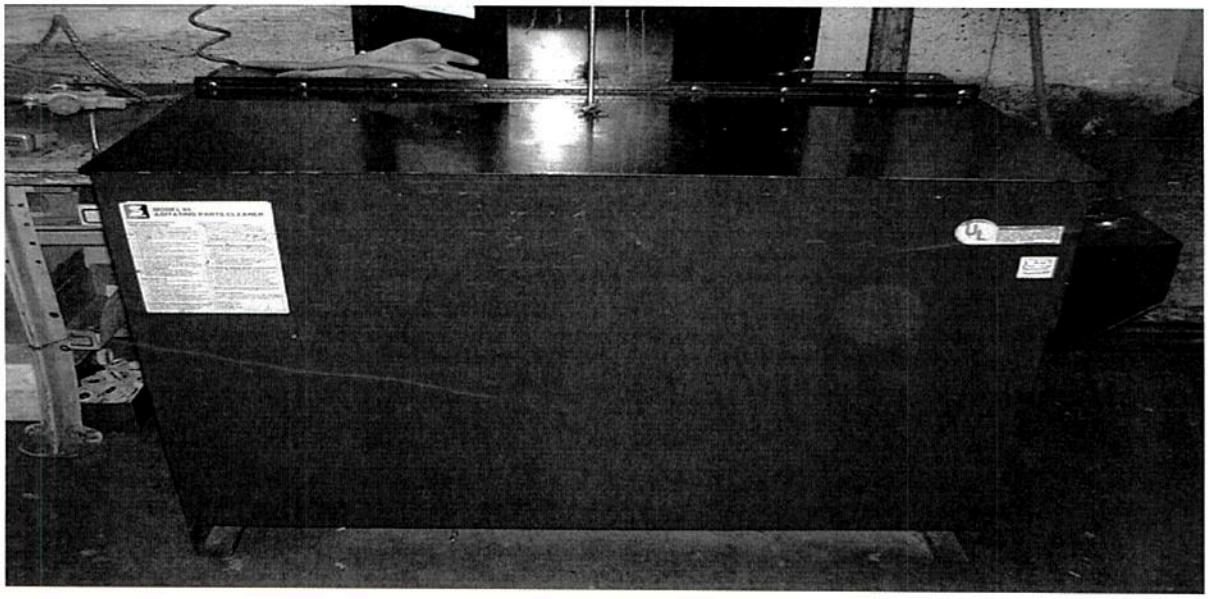


Photo Number: 16
Direction: Facing south
Description: Large parts washer inside Knitting Parts Room (SWMU 5)
Photographer: Jeremy Hogard
Date: 6/2/2004

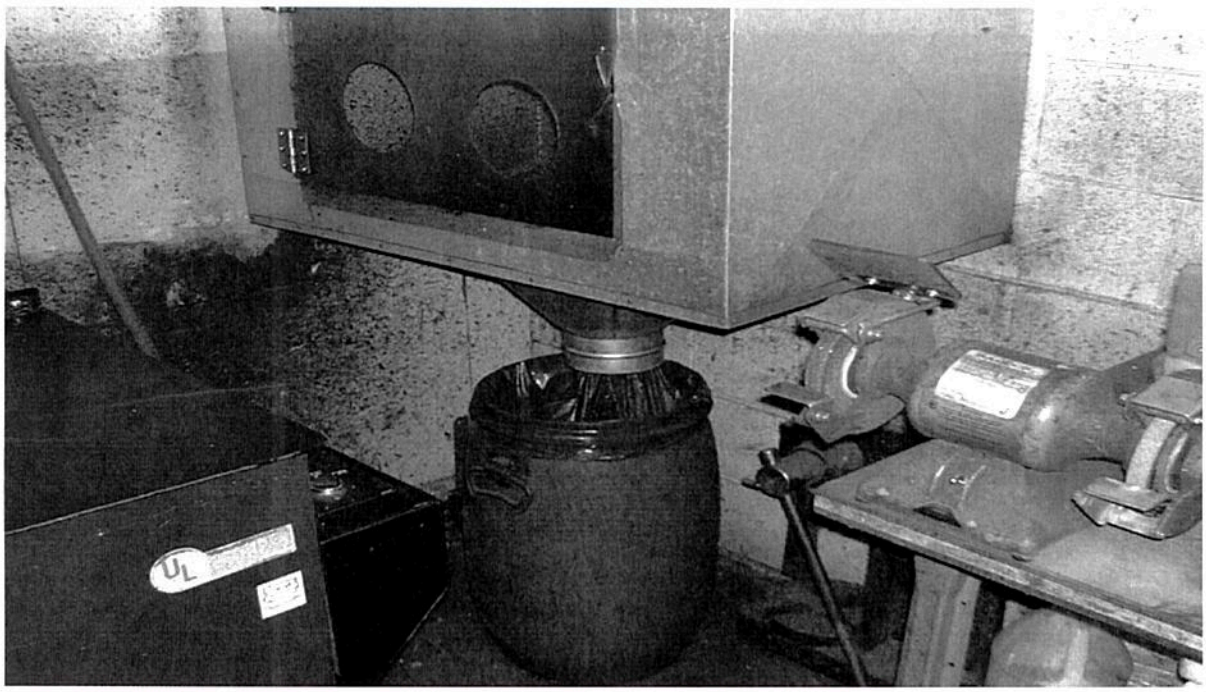


Photo Number: 17
Direction: Facing southwest
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Compressed Air Cleaning Box and Collection Bin (SWMU 6)

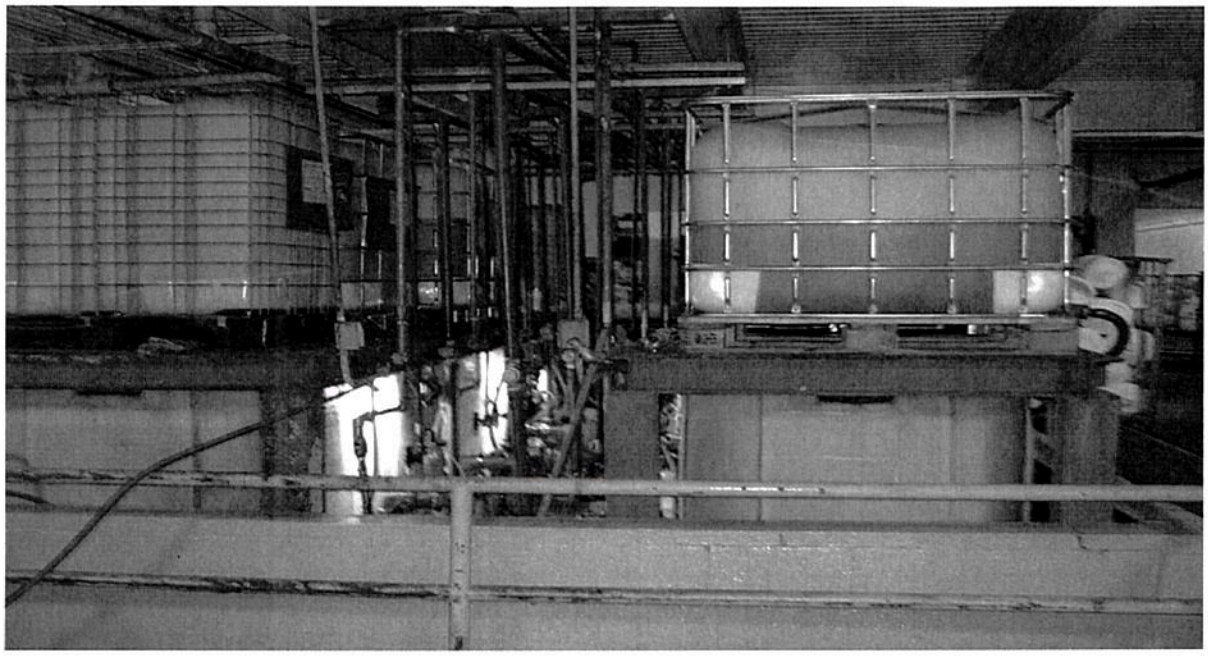


Photo Number: 18
Direction: Facing east
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Chemical Tote Farm and Secondary Containment (SWMU 7)

Photo Number: 19
Direction: Facing east
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Floor drain inside Secondary Containment for Tote Farm (SWMU 9)

Photo Number: 20
Direction: Facing west
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Floor drain in Dye Weighing Room (SWMU 9)

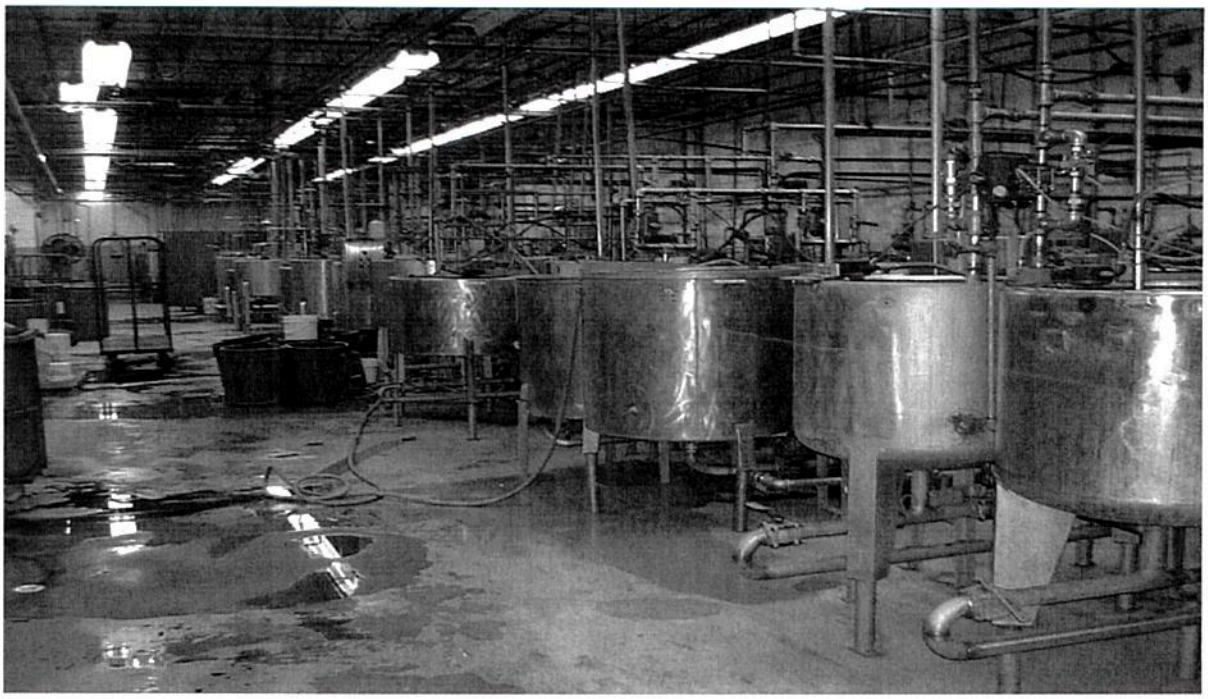


Photo Number: 21
Direction: Facing north
Description: Dye Mixing Room

Photographer: Jeremy Hogard
Date: 6/2/2004

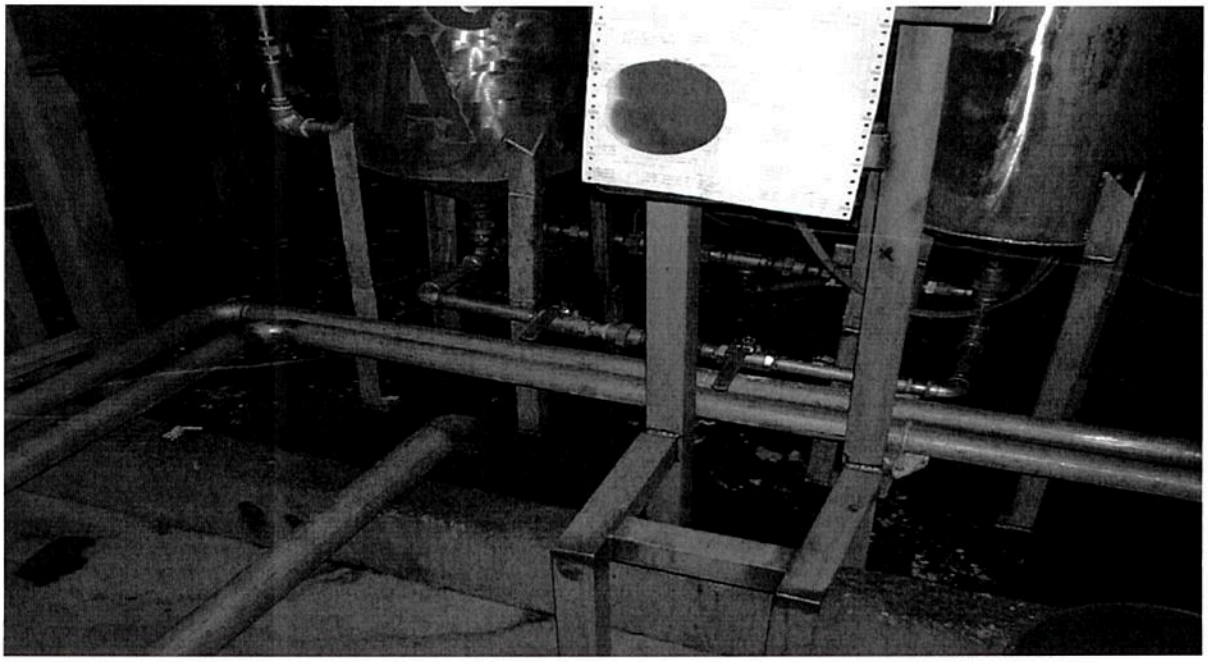


Photo Number: 22
Direction: Facing west
Description: Secondary Containment in Dye Mixing Room (SWMU 8)

Photographer: Jeremy Hogard
Date: 6/2/2004

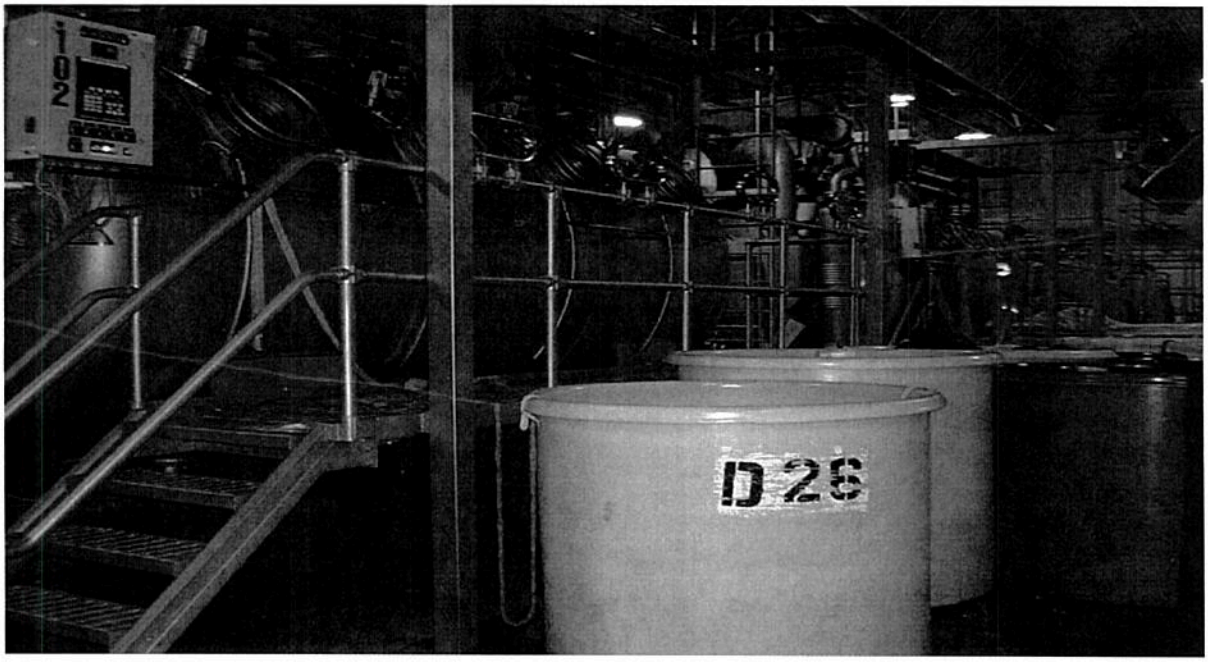


Photo Number: 23
Direction: Facing southwest
Description: View of one of the dyeing machines located in the Dye House

Photographer: Jeremy Hogard
Date: 6/2/2004

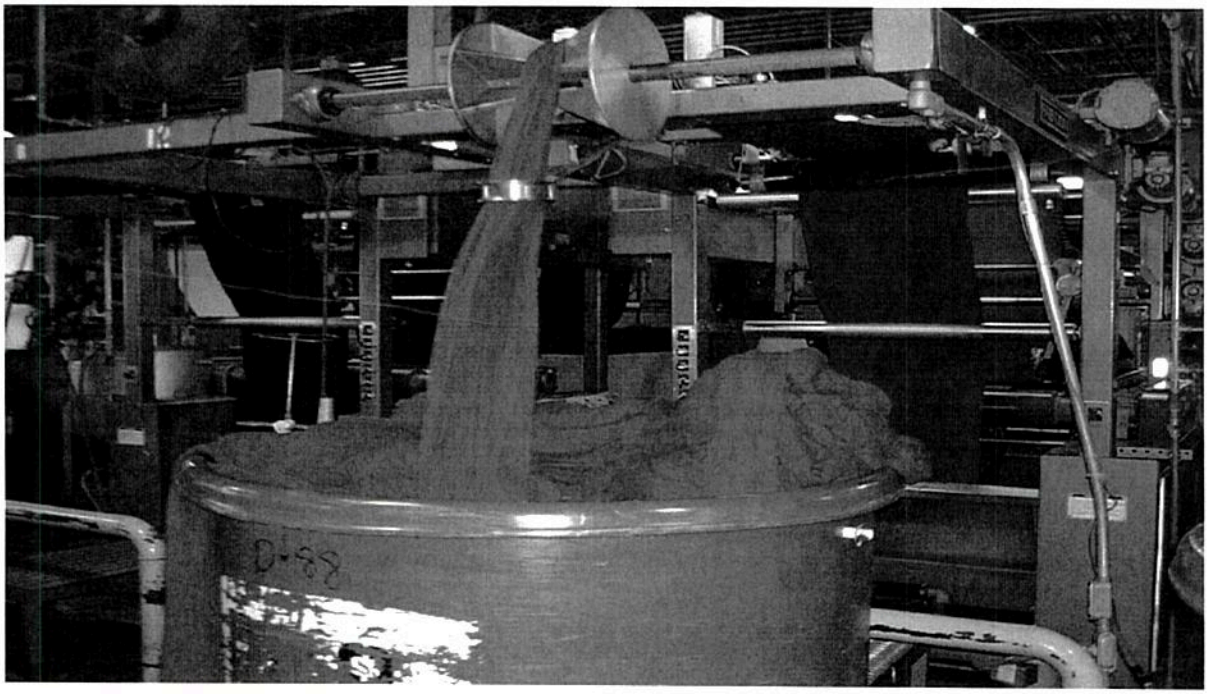


Photo Number: 24
Direction: Facing north
Description: View of beginning process in the Finishing Area

Photographer: Jeremy Hogard
Date: 6/2/2004

Photo Number: 25
Direction: Facing northeast
Description: View of final product (i.e. dyed cotton material)

Photographer: Jeremy Hogard
Date: 6/2/2004

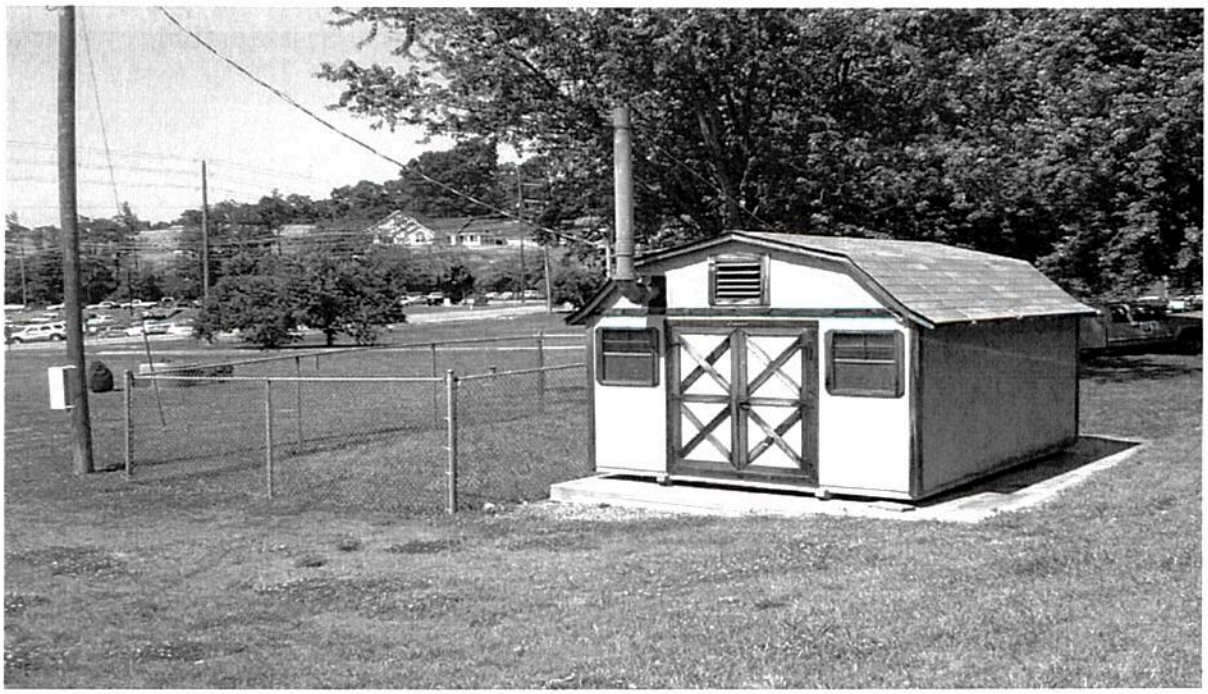


Photo Number: 26
Direction: Facing southeast
Description: View of former waste PCE tank area and air sparging shed (SWMU 11).

Photographer: Jeremy Hogard
Date: 6/2/2004

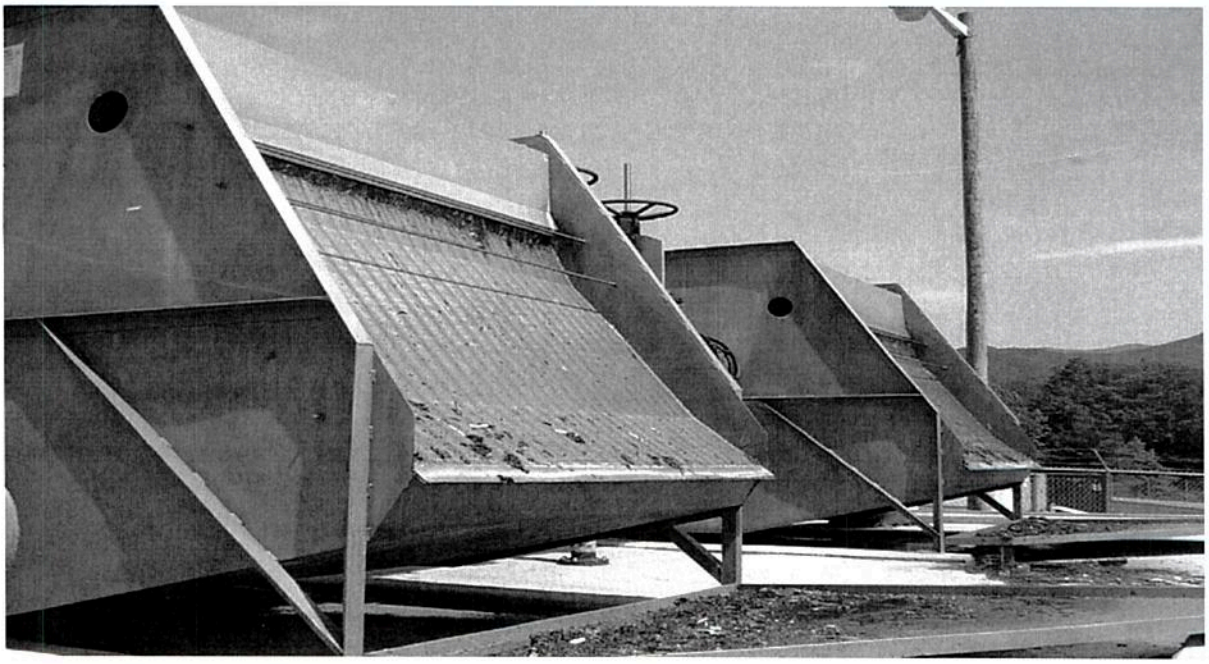


Photo Number: 27
Direction: Facing north
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: View of two Grit Chambers for the facility Waste Water Collection/ Treatment System (SWMU 12)

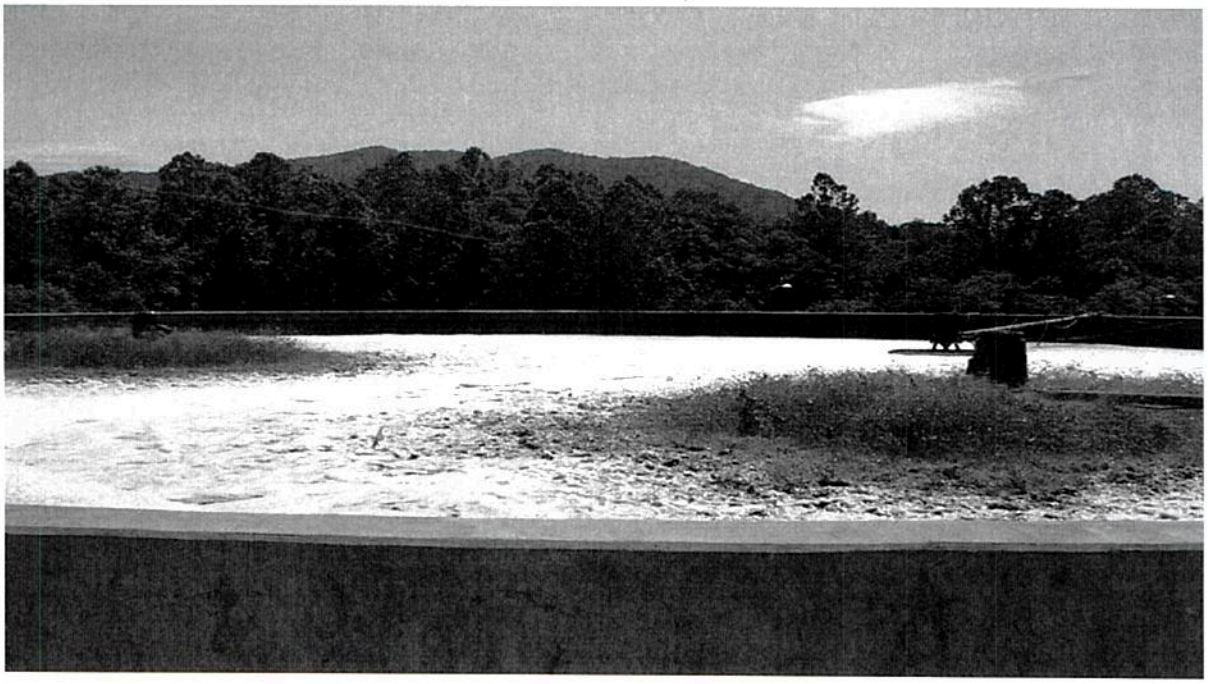


Photo Number: 28
Direction: Facing east
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: View of concrete surface water impoundment (SWMU 12)

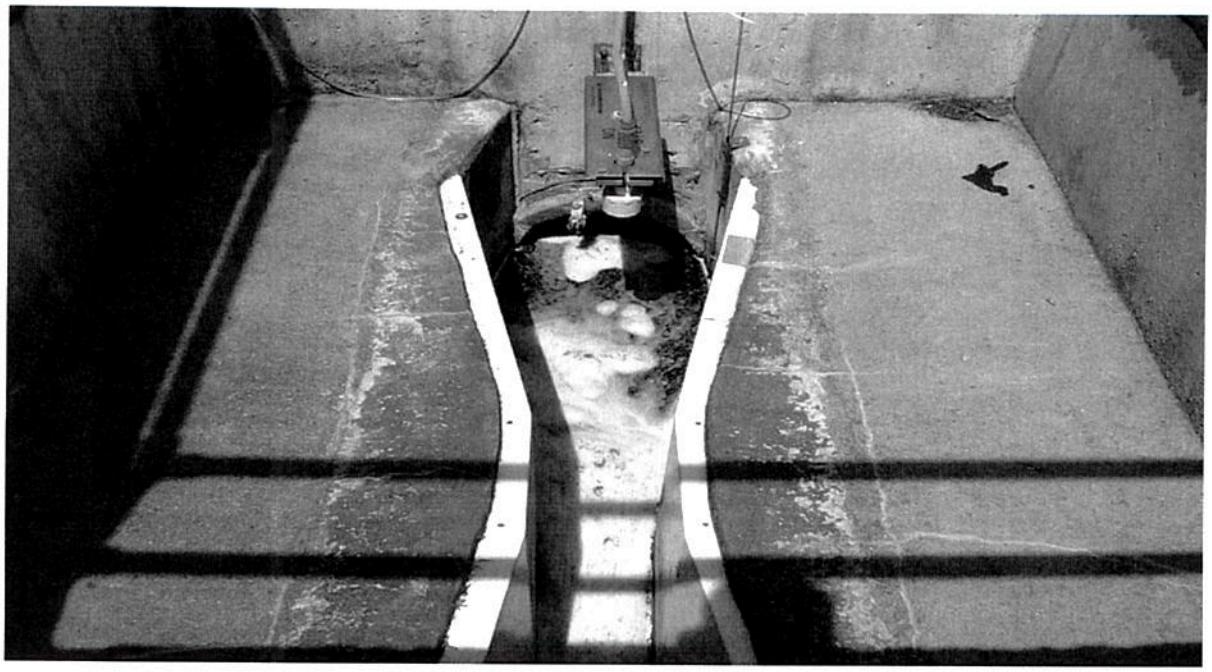


Photo Number: 29
Direction: Facing west
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: View of weir and effluent from the surface water impoundment (SWMU 12)

Photo Number: 30
Direction: Facing southeast
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: View of Beetree Creek located at the southeast corner of the subject property (AOC 1)

Photo Number: 31
Photographer: Jeremy Hogard
Direction: Facing south
Date: 6/2/2004
Description: Concrete manway that reportedly leads to the pipe diversion for the historic 8-inch drain (SWMU 13)

Photo Number: 32
Photographer: Jeremy Hogard
Direction: Facing southwest
Date: 6/2/2004
Description: Top of drum buried at the Old Dump Area (SWMU 14).

Photo Number: 33
Direction: Facing southwest
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Partial 55 gallon drum that is badly rusted located in the Old Dump Area (SWMU 14)

Photo Number: 34
Direction: Facing south
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Construction material (i.e. concrete, metal, etc.) located in Old Dump Area (SWMU 14)

Photo Number: 35 **Photographer:** Jeremy Hogard
Direction: Facing south **Date:** 6/2/2004
Description: Partial 55 gallon drum that is located in the Old Dump Area (SWMU 14)

Photo Number: 36 **Photographer:** Jeremy Hogard
Direction: Facing south **Date:** 6/2/2004
Description: Roll-off container located on the north side of the manufacturing building (SWMU 15).

Photo Number: 37
Photographer: Jeremy Hogard
Direction: Facing north
Date: 6/2/2004
Description: Storage Area containing plastic waste handlers, metal tanks, and one fiber glass tank. This area is located adjacent to facility north fence line (SWMU 23)

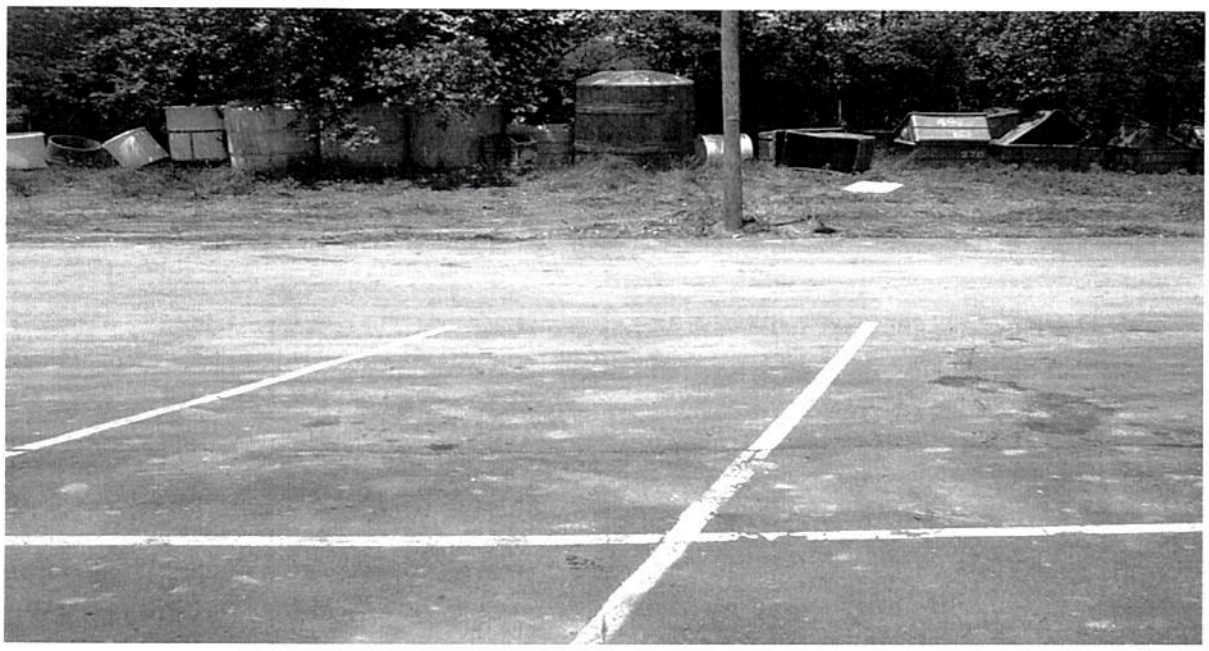


Photo Number: 38
Photographer: Jeremy Hogard
Direction: Facing north
Date: 6/2/2004
Description: Historic area of the Former Drum Storage Area (SWMU 16) that is now a paved asphalt parking lot

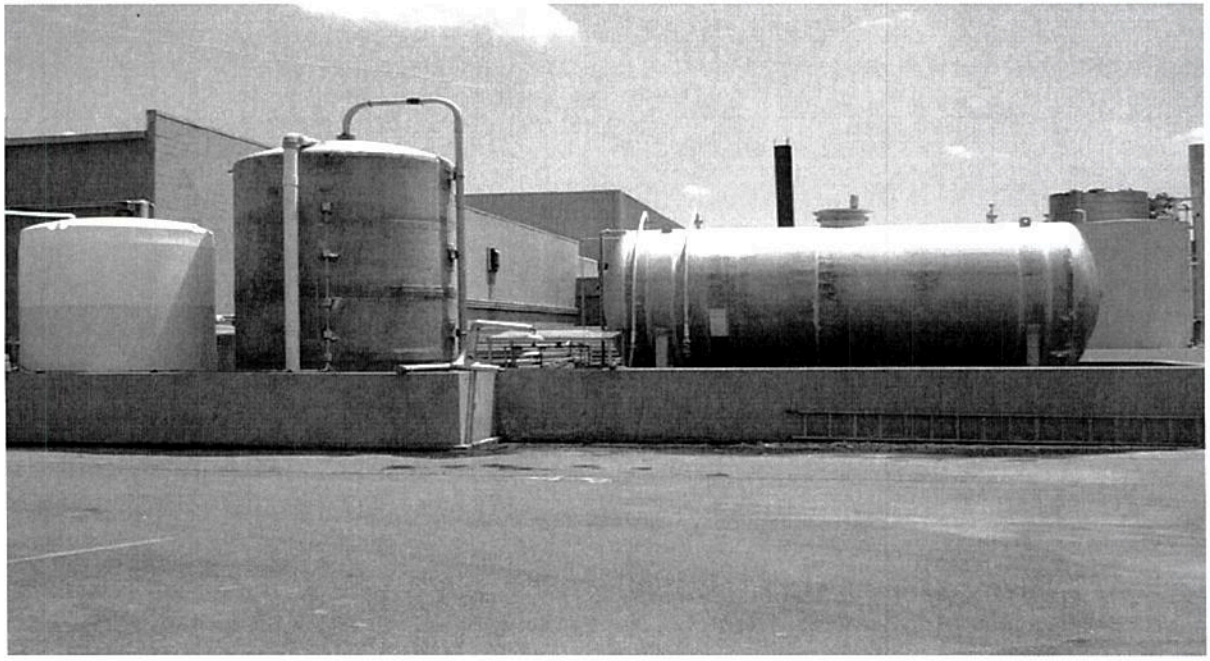


Photo Number: 39 **Photographer:** Jeremy Hogard
Direction: Facing south **Date:** 6/2/2004
Description: Four chemical ASTs and secondary containment containing Hydrogen Peroxide, Acetic Acid, and Salt Brine (SWMU 17)

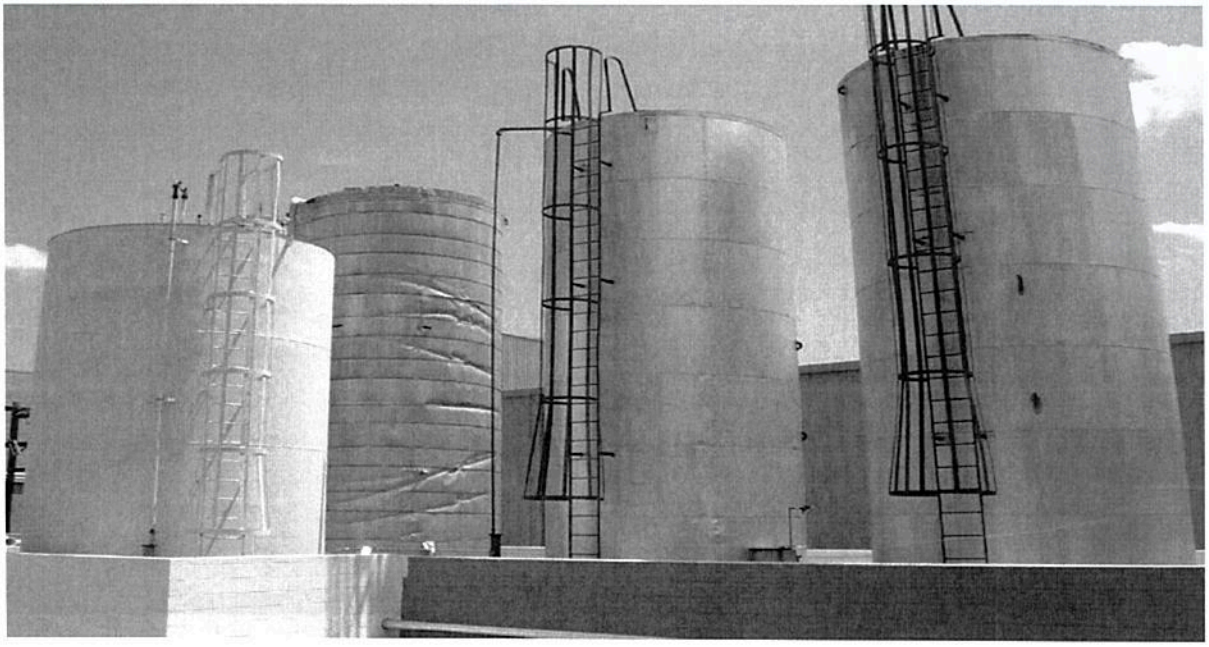


Photo Number: 40 **Photographer:** Jeremy Hogard
Direction: Facing south **Date:** 6/2/2004
Description: Four 20,000 gallon ASTs and secondary containment containing # 2 and # 6 fuel oil (SWMU 18)

Photo Number: 41
Direction: Facing east
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Roll-off container located on the west side of the manufacturing building (SWMU 19)

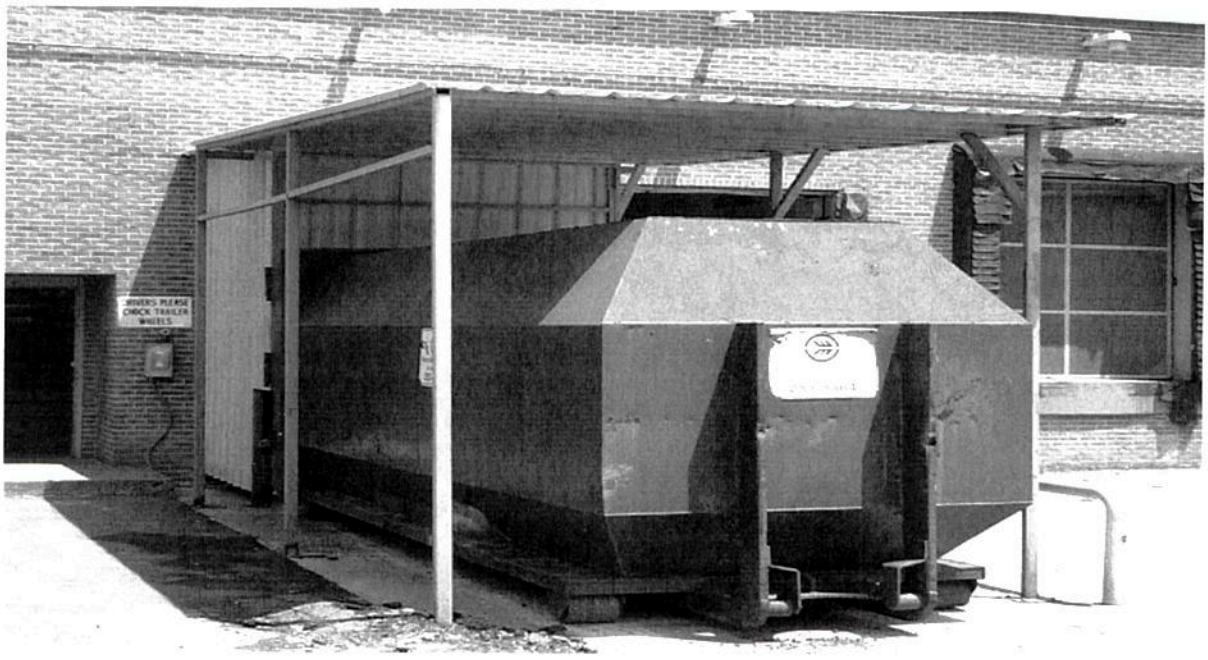


Photo Number: 42
Direction: Facing east
Photographer: Jeremy Hogard
Date: 6/2/2004
Description: Roll-off container with compactor located on the west side of the manufacturing building (SWMU 20)

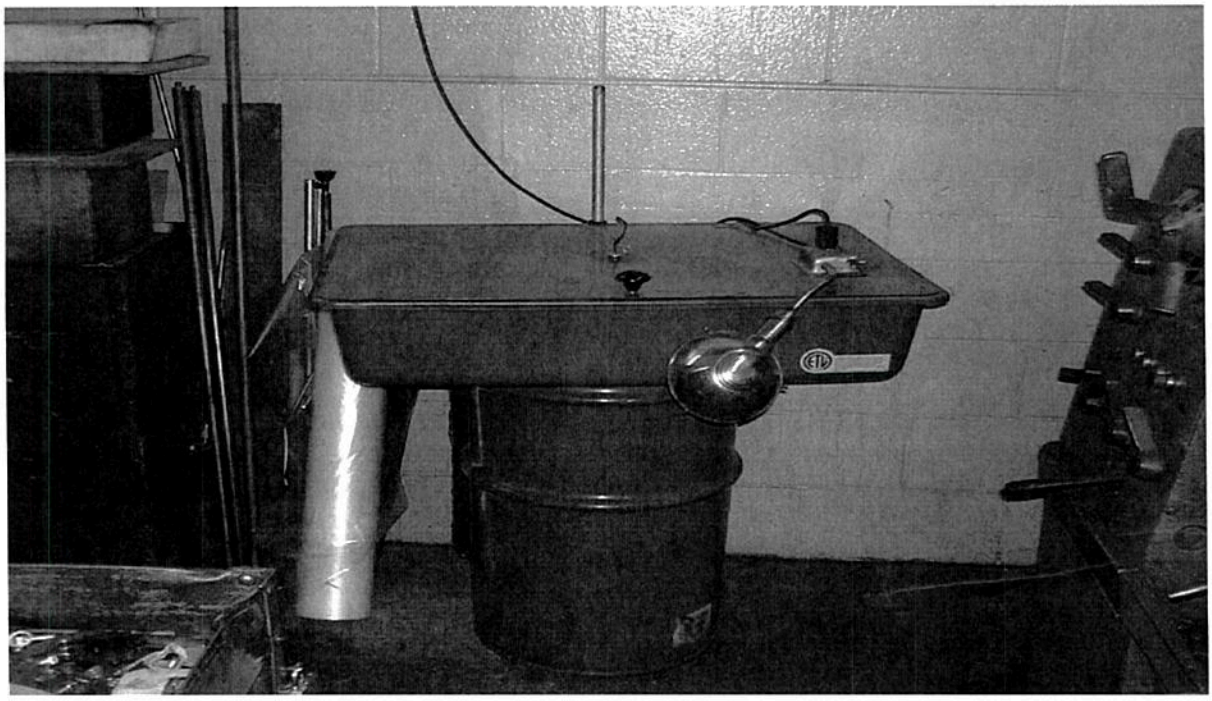


Photo Number: 43 **Photographer:** Jeremy Hogard
Direction: Facing west **Date:** 6/2/2004
Description: Small parts washer located inside of the Maintenance Shop (SWMU 5).

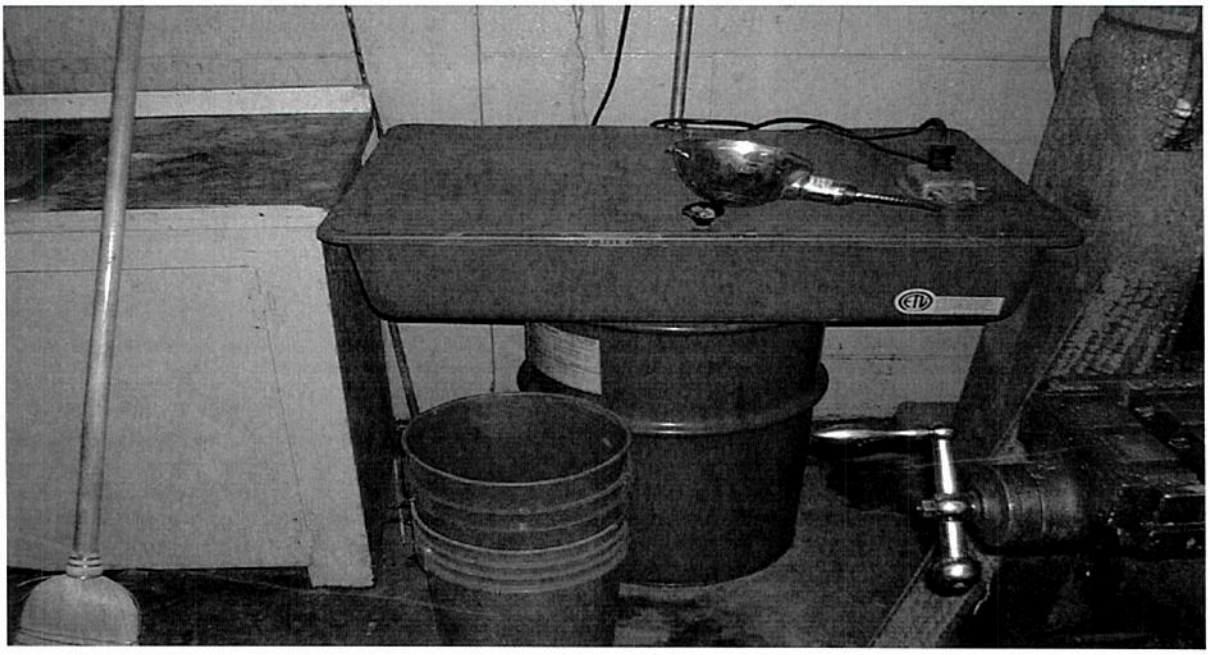


Photo Number: 44 **Photographer:** Jeremy Hogard
Direction: Facing east **Date:** 6/2/2004
Description: Small parts washer located inside of the Maintenance Shop (SWMU 5)

Photo Number: 45
Direction: Facing south
Photographer: Jeremy Hogard
Date: 6/2/2004

Description: Two 55 gallon used oil drums and secondary containment located on the third floor of the manufacturing building (SWMU 22)